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A STUDY IN LABOR MOBILITY

BY

THE INDUSTRIAL RESEARCH DEPARTMENT
WHARTON SCHOOL OF FINANCE AND COMMERCE
UNIVERSITY OF PENNSYLVANIA

ANNE BEZANSON
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PREFACE

THE Department of Industrial Research of the Wharton School of the University of Pennsylvania exists by the aid of the Carnegie Corporation and a number of interested individuals and firms. With the coöperation of members of the Philadelphia Industrial Association and other members of the industrial community, the Department seeks to give practical response to the need for local units for coördinating industrial research in the more important centers of population.

As such a unit it makes progressive studies that will represent continuous cross-sections of one industrial community. These studies should in time contribute information of value to students of general economic and industrial problems. They may have value to the immediate community and to teachers of industrial subjects by supplying facts on which constructive programs may be based as well as by indicating community conditions and tendencies.

This account is submitted as a more extended statement of scope and purpose and as a preliminary discussion of one of the studies now in progress. This study has been made and the report prepared under the immediate direction of Miss Anne Bezanson.

JOSEPH H. WILLITS.

FOREWORD

IN publishing this study no claim is made for original methods or conclusions. For a decade industrial managers have recognized the place of the analysis of labor turnover in their own plants; this study aims to show the still larger place for this control in a community labor market. Numerous inquiries from industrial educators, students, employment executives and research associations influenced the department in presenting at once even an incomplete study with a statement of the research program.

To all members of the Philadelphia Industrial Association indebtedness is acknowledged for coöperation in the various studies started throughout the year. For careful reporting in connection with this study especial obligation is acknowledged to a group of 25 firms, some of whose names are withheld, owing to the absence of several executives. Other firms cooperating are: Aberfoyle Manufacturing Company; American Pulley Company; Barrett Company; A. M. Collins Company; Chalfonte-Haddon Hall; Hess-Bright Manufacturing Company; John T. Lewis & Brothers Company; Miller Lock Company; New York Shipbuilding Corporation; Notaseme Hosiery Company; Fayette R. Plumb, Incorporated; Sears, Roebuck and Company; John B. Stetson Company; Stokes and Smith Company; United Gas Improvement Company; Westinghouse Electric & Manufacturing Company; S. S. White Dental Manufacturing Company.

Individual credit is due to Mr. Paul Gendell and Mr. Roswell Henninger, who have served as chairmen for the Research Committees.

The Department is indebted to all members of the research staff, especially to Helen Opp and Elizabeth Lundy for computations; to Marjorie Crossingham, Harold Denison and Paula Zeisse in preparing charts and tables; for great aid in revising the manuscript to Miriam Hussey.

ANNE BEZANSON.
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INTRODUCTION

AT the beginning of March, 1921, the Industrial Research Department at the University of Pennsylvania began active work. The initial organization was made possible by the coöperation of the Carnegie Corporation. Especially encouraging was the understanding of Dr. J. R. Angell and Dr. Beardsley Ruml in foreseeing the growing need for definite coördination between education and industry in research work. In Philadelphia a small group of employers were interested by reason of long contact with the Department of Industry of the University. There was, besides, the Philadelphia Industrial Association group, among whose members were plant executives and employment managers ready to voice the need for careful analysis of many matters frequently discussed in the past years of employment adjustments. The interest and advice of members of The Scott Company, notably that of Mr. L. B. Hopkins, was invaluable in the six months of planning preceding the actual starting of the Department.

Need for Industrial Research

The Industrial Research Department grew out of the need for careful study of some of the problems of personnel—a need felt both by industrial concerns and educational institutions. For a decade before the War, many individual firms in widely scattered industrial centers, in the United States and Europe, had experimented with the centralization of certain functions relating to the selection, training, and follow-up of the employees. These activities tended to run to peaks according to the needs of the organization or the individual manager's conception of his obligation to his employees. The war activity and the shortage of labor hastened the starting of new departments, which in the main tended to copy organization and methods as worked out by early experimenters. During the War immediate matters of production were so pressing that no time was available for detailed study, however valuable the conclusions might be in the long run. The very pressure of the war production situation had, however, stimulated discussion and furthered the pooling of information. Employment Managers' Associations were organized in local areas where executives interested in labor problems met regularly to exchange experiences. Much of value and inspiration was brought out in these discussions. As time went on, however, there was needed some sifting of the worth of experiences, some analysis of the comparability of the conditions and methods, and some conclusions as to what things had been established by the cumulative experiences of every one.

At the close of the War a different method of approach and a new type of experience was brought to the problem by men connected with the work of the army. Psychologists, physicians, and prominent employment executives had together applied to the classification of army personnel methods already tried out in industry. The new application brought changes and development in the old systems. A new technique resulted, new methods and a broader understanding of the scope of the problem pointed to the possibility of a wide use of some of the altered methods in industry. No

en masse application of methods was possible. Everyone realized how different was the problem of stability in an industrial plant. The army method of attack had to be modified and experiences checked until new and more complete data could be secured. Again came a new period of experimentation with more technical methods in a new phase of the problem —a problem made unusually complex by the expansion of industry and the post-war adjustments.

The need for authoritative data was equally apparent before further steps could be taken in the teaching of the technique of personnel. A very few courses in Employment Management were undertaken in University departments. Short courses were started by the War Department and supplemented by longer courses in educational institutions. These are still going on in coördination with courses in industrial management with some attempt to train executives for personnel positions. Materials available for such classes lacked the comprehensiveness necessary for clear presentation. The limited sphere of usefulness of a great deal of personnel research engaged in at present, or in the past, is due to the isolated character of the data; isolated either because carried on by a single business house with emphasis upon too immediate findings, or because of a lack of effective coordination between its scientific aspects and the practices and policies of business. Other difficulties arise from the separation of subjects in educational institutions. Personnel research involves the bringing together of the findings of science in many fields of study. These sciences separated into departments on the basis of materials, for purposes of study and teaching, must in some way be united for interpretation of the complex factors found in modern industrial relations. It was to meet the needs of both industrial and educational groups that Dr. Willits for the University took the leadership in organizing a department to correlate more closely the work of education and industry.

Scope

The scope of the Department can be as wide as are the ramifications of employees' activities. Two ideals guide the Department in undertaking work. The first of these is to work intensively, confining the research studies to the area of the Philadelphia labor market. This limitation carries the Department into Delaware as far as Wilmington and its environs, across the river to Camden and Collingswood in New Jersey and into such manufacturing parts of Pennsylvania as Chester, Reading, and Shamokin. The limitation of area should make possible a continuous contact with members as well as background of knowledge concerning community factors which are common to all concerns in influencing workers. It is this knowledge of the background of community factors that should in time make the work of the Department of greatest value. Nowhere before has there been an attempt, over a long period, to study seriously the problems of a single local market. Writers have said that, "the state of employment in certain trades is affected more by purely local variations than by seasonal and cyclical fluctuations," or that, "even taking the labor market as a whole, the state of employment varies as much from one city to another as it does from one season to another."[1] This would indicate the need for careful study within industrial communities.

[1] Smelzer, D. P., *Unemployment and American Trade Unions*, Johns Hopkins' University Studies—Series XXXVII, No. 1, 1919, p. 25.

The second ideal in connection with the development can be realized only in part, though it furnishes a yardstick to measure somewhat the Department's scope. As an Educational Research Department the material of most value in the long run is secured by the continuous reporting of data. This gives time for the standardization of records and makes possible the elimination of seasonal factors as well as the comparison of results under different manufacturing conditions. It is unlikely that anyone could foresee in a single tabulation all the various comparisons which future inquiries will show to be of value. There will be available a body of data, similar in its circumstances of collection, which future students of industry can reanalyze in terms of new problems. From another point of view there is also an important limitation upon the scope of the Department. There will always be research problems of primary interest to individual firms. Some technical matters and questions concerning the raw products of an industry can be better studied in the firm itself. Thus the work of the Department supplements without in any way replacing research carried on in the plants.

Even in personnel matters much data is necessary for information and for correlation with other records within the plant, although some of this is merely of short-run value. One might say that there are roughly three types of information and research: (1) Records kept purely for purposes of immediate information; for instance, if an employee is injured, someone must know what relative to notify. If a young person is hired, someone must know his age, purely as a matter of legal record. (2) Other material is of more value for purposes of interpretation. If this relates to the specific industry, it might better be analyzed and studied in that industry. Some data may even be of technical value for the wider group represented by the trade. In such cases, no one would argue that material should be collected and remain unanalyzed. The bearing of the conclusions, however, will be definite enough in terms of the product to insure analysis and summarization by the plant or trade concerned. (3) There is a third class of facts which frequently become of value only in terms of community factors or of a large group of industrial establishments. Perhaps the problem of the shifting of employees from plant to plant is as good an illustration of this sort of problem as one can find. Within limits certain analysis can be made in each plant. Yet no plant exists unto itself. Its labor supply is affected by community, climatic and seasonal factors. The data of a plant become valuable in so far as the concern can avail itself of the knowledge of the effect of these factors in other plants.

Difficulty arises, however, whenever plants begin to compare with each other. Because for purposes of comparison: data at each plant must have been collected and compiled in the same way; records must be continued consecutively over a fairly long time; and occupational titles should be defined and used with a common connotation. To make occupational comparisons valuable, titles should be defined carefully and should be used in all plants in accordance with the descriptions agreed upon. For any such program, there is needed a common clearing house. With any start of common definition for one study, it is quite possible to widen the studies for which such standardization can be used effectively.

It has been recognized for years that the most successful business men

are those who read correctly "the signs of the times" and determine policies on the basis of facts accurately collected and carefully analyzed. The more expert they become in foreseeing the immediate future by the immediate past and the more fortunate they are in discovering business principles that hold good in the long run, the more certain it is that they will attain success. What is only imperfectly recognized today, both by business men and by research organizations, is the practical importance of personnel statistics continuously collected and scientifically analyzed on a scale too big to be handled by any one business firm.

Aim

The aim of the Department is somewhat anticipated by the statement of scope. Concretely, the Department of Industrial Research aims not only to study the factors of the Philadelphia labor market but to set up such standards for the collection of personnel statistics as will make possible the continuous compilation of labor data in this community for such industrial facts as experience shows to be of value in formulating a labor and production policy in the area. The matter of continuous reporting has already been stressed. During the past year the problem of unemployment in Philadelphia was much discussed. Each speaker, according to his temperament, guessed how many were out of work in the city. Had any organization been recording the number on the payroll and the number of workers laid off there would have been some basis, although inadequate, upon which to base plans. The Philadelphia community, notably the firms and educational institutions, should be dissatisfied with inadequate information for dealing with such a problem in a new crisis. An outstanding problem of this character will get attention from many agencies. The Department can assist mainly in supplying supplementary data collected and analyzed continuously. In the formulation of a labor policy it is recognized that there is no possibility of setting up a permanent inelastic program. The industrial relations problem is an ever-changing one. If ship carpenters are scarce, refusal to adjust wages will not carry employers far, though the wage may have been considered adequate in the past. If an industry is expanding, refusal to permit training, or inadequate methods in training, will create problems difficult to adjust. An open-minded experimental attitude toward production policies is needed, but open-mindedness alone never will insure just policies. The problems involved are in part technical. No amount of good intentions will prevent the formulation of an unsound wage policy. Decisions concerning industrial relations can only be made on the basis of economic training and knowledge of industrial facts.

Despite this very ambitious distant program, outlined for the Industrial Research Department, the method of working involves taking one simple problem and continuing emphasis upon the study of that problem, until the group interested in that problem is large enough to be a typical statistical sample.

Also the records must be compiled long enough to suggest the study most likely to yield the information missing for complete interpretation of the special factor being emphasized at the time. When a new study is added the old one will be continued. There will thus be built up a series of studies related to and growing out of each other. Each one will require more and more careful contact with the individual

plant. The continuous widening of the scope of the work must be in terms of the problems and needs of each plant. If other educational institutions, working with employment associations, should establish similar research organizations, all coöperating, there would be built up an interchange of information in community terms which, at crucial times, might assist in a wise choice of policy, but which more than anything else might help in building up sounder practice in the day-by-day industrial relationships.

PART I

I—REASON FOR THE SELECTION OF THE LABOR TURNOVER STUDY

I. Labor Turnover a costly item, 171 — Necessity for plants to analyze labor mobility, even in time of depression, 171 — Need of uniform and continuous reporting, 172 — II. Reasons for leaving classified according to standard practice, 172 — Sample method of reporting, 173 — III. Definitions of resignations, discharges, lay offs, 174 — List of classified reasons for leaving, 174 — Why "avoidable" and "unavoidable" are not used, 176 — Formula used for the uniform calculation of turnover, 176 — Annual basis preferable, 176 — Why exits are also analyzed by departments, occupations, length of service, age, 177 — Description of sheet used for recording of data, 179 — Value of quarterly and yearly reports, 179 — IV. Discussion of nine major reasons for resignations, 180 — Reasons show need of improvements in plant, 181

A NUMBER of factors influenced the Department in selecting Labor Turnover as its initial point of attack. In the first place it must be borne in mind that the Department was started in the deep trough of the depression period. At a time when firms are scanning costs carefully the expense of the mobility of employees is not the most important item. In fact the quitting of an employee usually relieves someone in the organization from the unpleasant task of laying him or his fellow off. Capital and new orders are for the time being the important considerations. Inevitably emphasis must be turned to the scarcest factor in the business situation. Since this is not labor, there will be a tendency to cut down the keeping of labor-department records, and the analysis of such data will seem of little interest. This management point of view is well expressed in the following quotation from the letter of an executive in a very coöperative firm.

> We have not been hiring anyone for almost two years and the folks leaving our employ do not leave because of any dissatisfaction either on their part or ours. The few that do leave our employ are fortunate enough to secure some other work that for the time being pays them better. This is not a true condition of affairs. In fact, I feel that all efforts of comparison at the present time are a waste of time and effort.
>
> When business has improved sufficiently so that industrial plants are building up and have cause to hold their present corps of workers, it is then that comparisons become valuable. If you could conserve your fund until it would mean something to industrial plants, I believe you would have a great many interested whom you could not interest today.

Among the firms, then, there are wide gaps likely to occur in the recording of data during a depression and still wider omissions in the analysis of records. For two reasons this is unfortunate. First, from the broader point of view of the control of business depressions, information will be lacking upon which to base a control policy. Second, and more important, from the point of view of the plant itself there will be no careful watching of the shift in stability as the industries begin to return to activity. For instance, the improved employment situation in April of this year was reflected at once in every plant reporting in the group by a marked increase in turnover

among laborers. This occupational group alone accounted for the moving upward of the total turnover at a time when lay offs had become less of a factor.

Conditions, then, inherent in the business situation, would have pointed to labor turnover as a subject likely to yield some information otherwise certain to be permanently lost. Besides it was important that a subject be chosen which was of interest to all plants. Even when plants have not been able to provide the careful interviewing and extra recording which is necessary to coöperate directly in the turnover study there has been much interest in the comparisons of other firms. It was then not only a subject known to every one, but one in which group comparisons were undoubtedly of great value.

From the point of view of research the interest of the firms in the subject made possible regular and continuous monthly reporting. In any work where standardization is necessary for comparisons, records must be continued for some time in order to make the adjustments necessary to secure uniform data. For this reason the early months and in fact the first year of work was really preliminary despite the fact that much had been done in this field by previous investigators.

Perhaps the most cogent reason for the selection of this particular study was the fact that it was one in which firms are concerned both with its immediate computation for returns, and with its long-run trends and tendencies in interpreting their own experience and in utilizing the experience of others. Whenever attention is directed to long-run tendencies, the discussion of a study inevitably points to conclusions which cannot be drawn owing to paucity of data or inability to cover the field. Turnover in itself is in many cases a symptom, not a cause. For this reason the future of the Department will lead it to plough deeper into many of the problems now growing out of the turnover approach. It may be considered a tribute to the earnestness of the Philadelphia Industrial Association Group that at the end of the first year of research they were willing to undertake a study of the sources of labor supply which involves knowledge of the past training and experience of workmen with an honest attempt to discover what the workman is himself looking for as he moves from plant to plant.

II—COLLECTION OF DATA

The first step in a community study of labor turnover involved the issue of a bulletin of standard practice in classifying reasons for leaving. The Department does not claim credit for original methods in this grouping. Work already done by individual plants, as well as by industrial students, had been coördinated by The Scott Company. To this, much was added by their group of technically trained men and the results arranged in workable form in their Day Book Code. In adapting this material to its needs the Department had the assistance of Mr. Donald Paterson, now of the University of Minnesota. The heartiness with which the bulletin has been accepted in Philadelphia and other areas, is due to Mr. Paterson's experience in

avoiding overemphasis upon reasons of immediate importance at the expense of those likely to appear with industrial recovery.

Even now, no finality is claimed for the bulletin as here printed. Slight modifications have been made in it during the year and a half of use. Doubtless other students will modify parts of it still more. It has served to classify the records of twenty-five firms, representing widely different industries. The advantage of the bulletin has been that reports from plants were received in detail with an effort to retain as much as possible of the atmosphere of the shop. A grouping is made into general classes, at the same time that the shop detail is recorded in the computation, which goes to each firm. The more general classes are useful for comparisons with other plants. When groupings are made in one plant on the basis of its own experience, consideration is likely to be given to some factor important at the moment; no provision is usually made for new reasons. When this reason occurs it must either be classed under "miscellaneous" or occasion a wholly new grouping.

A sample is here shown of the way in which raw material is reported to the Department:

CAUSES OF LEAVING

Name or Number	Race and Sex	Department	Position Held	Date Entered	Date Left	Reason for Leaving
W. Thompson..	C **M** F	Janitor Service	Cleaner	5-17-21	5-30-22	R D L M Accident—home burned
J. Doe.....	C **M** F	N. V.	Grinder	5-14-22	5-17-22	R D L M Did not feel grinding was his vocation.
M. Smith	C M **F**	Engine	Operator	5- 1-22	5-20-22	R **D** L M Inattentive to her work
L. Allen	C M **F**	"	"	4-13-22	5-20-22	R D L M Mechanics could not get machine fixed
B. Donnelly...	C M **F**	"	Inspector	3-30-22	5-25-22	R D L M Better paying job
	C M F					R D L M

These detailed reasons are grouped by the Department according to instruction printed in the following chapter.

III—SUGGESTIONS FOR GREATER UNIFORMITY IN THE STUDY OF LABOR TURNOVER

Analysis of Reasons for Leaving

1. *Main Classifications*

There is no common understanding of the meaning of the terms "Resignation," "Discharge," "Laid Off," in the various reports studied so far. For example the following classifications were found in a single report from one company:

Inefficient—Discharge
Not Efficient—Laid Off
Not Steady—Discharge
Unsteady—Laid Off

It is proposed that all exits be classified into one of the following three groups: "Resignation," "Discharge," and "Laid Off." The classification of an exit into one of these three groups should be based on the following definitions:

A *resignation* occurs whenever an employee terminates his service with a company.

A *discharge* occurs whenever a company terminates the services of an employee because of some real or imagined fault of the employee.

A *lay off* occurs whenever a company terminates the services of an employee because of a lack of work.

(*Note:* A fourth group of "Miscellaneous Reasons" covering death, injury, old age, etc., occur rarely. Such reasons are of little practical importance and can be classified under Resignations.)

2. *Minor Classifications*

There is no standard list of the reasons for leaving now in general use. Some companies use a very short list and soon discover that many exceptional reasons occur that fall outside the list. Other companies go to the extreme of using an unlimited number of reasons and experience great difficulty in attempting to compare the nature of the turnover in one period with that of another period. Such an unlimited list of reasons leads to unwieldy turnover reports. The following list of reasons is proposed as a suitable compromise. This list yields definiteness in that practically all possible reasons can be readily classified. At the same time its major subdivisions are few enough to make comparisons easy and to keep periodic turnover reports reasonably short.

REASONS FOR LEAVING

R. RESIGNATIONS	*Code No.*
1. *Dissatisfaction with Wages*	10
Specific Reasons	
Rate	11
Earnings	12
Uncertainty of amount	13
Method of computing	14
Method of pay	15
2. *Dissatisfaction with Nature of Job or Working Conditions*	20
Specific Reasons	
Work too hard or too heavy	21
" " dirty	22
" " dusty	23
" " wet	24
" " smoky	25
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In using the above list of reasons for leaving it is recommended that a record of the specific reason for the departure of each employee be kept. The tabulated turnover reports should then use the major headings as a matter of routine. In this way detailed data are always available for more minute analysis if desirable. For example, should a company's report show an unusually large number of resignations because of reason 20 (dissatisfaction with nature of job and working conditions), it would be a simple matter to prepare an additional report that would show exactly what

specific working conditions were responsible for the situation.

This recommendation is based on the principle that labor turnover studies should primarily reveal general tendencies with emphasis on details only when the details seem to be important.

No attempt has been made to classify reasons for leaving as "avoidable" or "unavoidable." Experience has shown such classifications to be unsatisfactory and in some cases misleading. It is difficult to classify any particular case of turnover as avoidable or unavoidable. A particular discharge may be unavoidable at the moment, yet discharges are clearly avoidable in the majority of cases, for they represent an error in selection and placement by the employment department, inadequate training or upgrading of the employee in his job or the lack of effective leadership in managing him. Yet some companies classify discharges as unavoidable while other companies classify discharges as avoidable. Such lack of uniformity makes it difficult to interpret the turnover reports issued by different plants.

Again, a ten per cent lay off because of seasonal fluctuation of the business may for the moment be unavoidable. Had a different sales policy been in effect or perhaps had a manufacturing-to-stock policy or a manufacturing of a side-line product policy been in effect, it is possible that no such lay offs would have been necessary.

Ill-health and sickness are classified by some firms as unavoidable. Experience has shown that it is possible to cut down a certain amount of turnover for such reasons through medical examination, medical advice, first aid, nursing service and campaigns of education in hygiene and right living.

Even such a limited consideration of "avoidable" and "unavoidable" reasons indicates the impossibility of making such classification with even a fair amount of accuracy. For this reason an effort is here abandoned and a procedure is recommended that will give uniform results from one company to another if the simple definitions of "resignation," "discharge" and "laid off" are adhered to.

The purpose of the classification here proposed is to bring about greater uniformity in labor turnover studies in order that one company may know how its turnover problem at one period compares with that of another period.

COMPUTATION OF LABOR TURNOVER

The lack of uniformity in classifying reasons is paralleled by a similar lack of uniformity in methods of computing labor turnover. Without discussing the merits of the various methods it is proposed that the following method of computation be adopted. State labor turnover in the form of the percentage of the number of terminations of employment to the average force on the payroll during the year. For example, if the average force on the payroll during a year is 50 and the number of terminations during the year is 50, the turnover for the year is 100%. That is, the number of terminations (50) is divided by the average force (50). The result is a percentage figure of 100.

This method recognizes the necessity for expressing labor turnover by a figure that reflects not only the significance of changes from the point of view of cost to the employer but also from the point of view of cost to the public and the employee. This method gives a general picture of the turnover situation as a whole.

It must be recognized that a labor turnover percentage in itself gives only a vague idea of labor fluctuation. It needs to be broken down so as to show the "Resignation Turnover Per Cent," the "Discharge Turnover Per Cent" and the "Lay Off Turnover Per Cent." Indeed it may even be desirable to show turnover percentages for various specific groups of reasons. By such a procedure the nature of the turnover as well as the amount of turnover is revealed.

Reducing all Turnover Percentages to a Common Basis

Labor turnover reports may be issued weekly, monthly, quarterly, semi-annually. Within a given company all of these reports might be issued as a matter of routine. If all such reports reduce the turnover percentage to a yearly basis it is evident that the amount of turnover for a week, a month or a quarter, may then be directly compared.

The procedure for reducing the turnover for a given period to an annual basis is as follows:

1. *Weekly figures.* The number of terminations occurring during the week is multiplied by 52 to show how many terminations would occur during a year if the number of terminations were to continue at the same rate. Dividing this number by the average payroll for the week gives the desired turnover percentages on an annual basis.

2. *Monthly figures.* If the figures cover terminations for a four-week period then you multiply the number of terminations by 13 to get the number that would occur during a year at the same rate. If the figures cover a five-week period then multiply by 10.4, because five weeks go into the 52 weeks in a year ten and four-tenths times. If a calendar month is used multiply by twelve. Dividing this number by the average payroll for the month gives the turnover on a yearly basis. The average payroll for the month is found by adding the number on the payroll at the beginning of the month and at the end of the month and then dividing by 2.

3. *Quarterly figures.* The figures should cover a 13 week period (made up of two four-week and one five-week periods). The number of terminations during the 13 week period is multiplied by four to get the number that would occur in a year's time. This is then divided by the average payroll for the quarter (*i.e.* the average of the three average monthly payrolls).

Analysis of Turnover by Departments

Ordinarily, turnover by departments should be analyzed to the extent of showing the amount of turnover for each department and the reasons for leaving each department. In this way the departments in which the turnover is most heavily concentrated are automatically pointed out. The tabulation of the reasons for leaving each department shows immediately what caused the excessive turnover in those departments.

To carry forward this analysis as a routine matter implies the existence of figures showing the number of employees on the payroll by departments as well as a record showing the department in which each exit was employed and the reason for the departure of each exit.

Analysis of Turnover by Occupations or Crafts

If the occupations in the company have been carefully classified and arranged in a workable Occupational Index, it is then possible to carry forward an analysis of turnover by occupations. Here again the purpose is to identify those occupations in which labor turnover is excessive. The reasons for leaving each occupational group should also be tabulated so that the cause of excessive turnover in any occupational group may readily be determined.

Such occupational analyses become unwieldy unless all similar occupations have been grouped together in an index. With an index listing twenty or thirty major occupational groups it is a simple matter to carry forward the number of employees in each of these groups to tabulate the number of exits from each group and to record the reason for leaving. Occupational analyses of this sort are of unusual value because of the relation of wages to occupations and because competition for labor on the part of other firms is usually a competition by crafts.

It is unfortunate for purposes of the

coöperative study of turnover in a given industry or in a given community that there is no standard occupational index in existence. The nearest approach is the "Trade Specifications and Index of Professions and Trades in the Army" issued by the War Department on March 21, 1918. It is doubtful whether the companies coöperating in these labor turnover studies would gain much by the use of the Army Index. The coöperating companies represent many different industries so that relatively few occupations are common to them all or even to a small number. For this reason the occupational index would be a very lengthy and bulky affair, only a small part of the index being applicable to any particular company.

The situation seems to demand a separate occupational index for each company. Since many companies do not have a systematized classification of their jobs at present it is recommended that each company should prepare an index for itself. This index with the turnover record should be submitted to the Industrial Research Department to facilitate occupational turnover analyses for each company.

Analysis of Turnover by Length of Service

It is important to study turnover in relation to length of service to determine whether turnover is excessive among new employed or whether it is excessive among any other length of service group. Turnover for a company as a whole may be relatively small and yet an excessive turnover may exist among some particular length of service group. To definitely measure turnover in relation to length of service is ordinarily difficult, for it involves a periodic inventory of the length of service of employees on the job. This type of analysis has rarely been made.

The usual procedure and the procedure here recommended for routine turnover reports consists in recording the length of service of each exit, tabulating the distribution of the length of service of exit in such a way as to compare the length of service of those exits who resign, are discharged or laid off.

Analysis of Turnover by Age

A record of the age of each exit will permit the Research Department to study important relationships between age and sex, and turnover in certain occupations. For example, a very definite and important relationship has been found by some companies between age and stability of common laborers. It will take considerable research work to discover how universal such relationships are—each company can make a real contribution to these studies by furnishing the necessary age and occupational data about each exit.

Turnover by Education, Nationality, Dependents and Marital Status

No question of turnover is of greater importance than the relation of education to occupational satisfaction. A few experimental studies give much promise. Unless the education record is carefully procured, conclusions will be misleading. It is necessary to know the age at which the exit left school as well as the grade attained. The accumulation of data concerning the education, nationality, dependents, etc., of each exit from the various coöperating companies will in time permit the Research Department to make studies of the relationship between turnover and these various factors. At the present time there is much speculation and numerous opinions concerning the effect of these factors on turnover, but little actual knowledge is available. Results from the reporting of such detailed data could be secured only after a considerable time. It is believed, however, that study of these factors will yield results that will, in the long run,

more than repay the coöperating members for the expense involved in submitting to the Department such data concerning each exit.

Summary of Data to be Submitted by Coöperating Members

The following data should be submitted *monthly* to the Department by each of the companies coöperating in the study of labor turnover:

1. *Departmental Labor Inventory.* This is a list of the departments showing the number of employees on each departmental payroll on the first day of the month.
2. *Occupational Labor Inventory.* This is a list of the major occupations showing the number of employees in each major occupation on the first day of the month.
3. *Data Concerning Exits.* This is a list of all exits during the preceding month showing for each exit the department, occupation, specific reason for leaving, length of service, age and sex.

The Department will issue record sheets that will facilitate the recording of data. To save space on the record sheet and to reduce the clerical work involved in entering the data it is necessary to print on the record sheet itself certain items that only need to be circled in making an entry. The items are as follows:

Age:— Blank space for entry of date of birth.

Race and Sex:—Letters M and F printed on record sheet. Circle M in case of male and F in case of female exit. Colored will be indicated by circling C as well as male and female.

Length of Service:—Two spaces provided for the date of entrance and date of leaving, showing the total length of service of the employee.

Reason for Leaving:—Letters R, D, L, M printed on record. Circle R for resignations, D for discharges, L for laid off, M for miscellaneous. Space for entering the specific reason for leaving. See "Reasons for Leaving" list. Circling the letter for items is insufficient. A detailed reason should also be given.

Department:—Space for entering the name of the department being left by the exit.

Occupation:—Space for entering the name of the occupation the person is leaving. These names to be furnished by each company for its own list of occupations.

Reports to Coöperating Companies by the Department

The chief value of an elaborate turnover report lies in the discovery of trends and tendencies that need correction. Monthly reports are apt to reflect momentary conditions that are absent in subsequent months. The short weekly and monthly reports usually compiled within a company reveal these momentary conditions to a sufficient extent for all immediate purposes.

Detailed turnover reports that will disclose important trends and tendencies need to cover a number of months. It is probable that semi-annual reports will best serve this purpose.

Such semi-annual reports will include an analysis of changes in the amount, nature and causes of turnover from month to month. In this way those conditions that exist in only one or two months will be concentrated with the more important trends that show up for a number of months.

The Department will tabulate the turnover figures from each company at the end of each month and at the end of each three months' period will prepare a special report. The special quarterly report for any company will concern itself, of course, with the turnover figures for that company alone.

In this way each company will receive a direct service from the Department relative to its own turnover figures. At the same time the Department will be able to render a more general service by supplying all the

companies those general facts and relationships that are discovered from time to time and such comparisons as are at all useful and comparable.

A form covering the items already discussed is supplied to firms. This is printed in the appendix. In a few cases a more detailed form is used by the plant, equipped to give such information. (See exhibit Nos. 1 and 2.)

IV—DISCUSSION OF GROUPING OF MAJOR CLASSIFICATIONS

SIGNIFICANCE OF MAIN DIVISIONS AND MAJOR REASONS OF TURNOVER

Nine major reasons will be found under Resignations:

(1) Dissatisfaction with wages.
(2) Dissatisfaction with nature of job or working conditions.
(3) Dissatisfaction with hours or time of work.
(4) Dissatisfaction with Labor Policies.
(5) More attractive opportunities elsewhere.
(6) Community and family reasons.
(7) Personal reasons.
(8) Physical reasons.
(9) Reason unknown.

The first four groups show roughly the relation of the employee to his own plant, the fifth deals with the employee in his relation to other plants, the sixth and seventh attempt to distinguish between social and personal reasons. This latter classification is significant mainly in the industries employing women, since a large item in the "personal" group is due to resignations of women "to be married." The "unknown" does not in most cases represent poor statistical reporting, but comprises rather the cases of employees who quit, giving such an indefinite reason that no one can distinguish between the primary cause and general dissatisfaction due to many circumstances.

Frequently questions arise concerning the reliability of reasons given to the interviewer of an employer. It is true that a worker rarely resigns for any one reason, his decision to leave is often influenced by a series of previous occurrences. Even at the time he leaves, secondary reasons are often given. The interviewer is forced to judge the circumstances that seem to be of most influence, by his knowledge of the character of the foreman, by his previous contact with the worker, or by difficulties in connection with production or earnings at the time. In a large number of exits the secondary reason for one employee will appear as primary for another. Over a long period the reasons causing most difficulty should appear. The reasons given throughout this report are those secured by the interviewer at the plant reporting. It would be desirable to check certain reasons by personal interviewing after the employee has left the plant. For instance, when such interviewing is possible the "work elsewhere" group changes somewhat. But little work has been done in checking, nor would it be easy to do such work later. Besides many of the reasons would still be far from exact. As will be pointed out later, there are rough checks in the figures themselves. Again, many reasons are too subtle to appear directly. For instance, relations between education and occupational satisfaction, between age and stability, between promotion and skill, etc., must be arrived at indirectly. Such a reason as "lacks confidence" often should be checked with the education and past experience of

the worker—these more subtle causes being unknown to either worker or recorder.

To show that it is possible to get complaints that pertain to the work and the management, an analysis is here given of the detailed reasons, grouped under "Working Conditions" and "Labor Policy" at a textile plant, during 1921. From the reasons one might infer that the firm was operating with poor building and equipment. It is, in fact, a well conducted, modern plant, one of the best in the trade. Despite good lay-out there still remains the question of routing of work and the inter-relation of production as work advances through the shop, all of which affect the satisfaction and stability of employees.

Could anyone read over the list of reasons without realizing how closely related are matters of industrial organization to employees' stability, in spite of the fact that some of the specific names of operations have been eliminated to prevent identification? One wonders what was the occupation and length of service of the one hundred and twenty-two persons who "disliked the work." These queries can be answered from the figures; there still remains the unanswered question of just what occasioned the dislike. In this case the employment manager does especially well in interviewing.

WORKING CONDITIONS AND LABOR POLICY

Reasons for Leaving	Total	Reasons for Leaving	Total
Disliked work	122	Work too hard on hands	1
		Wanted home work	2
Dissatisfied	30	Changed to different work	5
		Wanted only the best work	1
Work too hard	21	Wanted time work	1
		Could not get used to points	1
Machines		Dissatisfied with wool work	1
Wanted different machine	1	Too much lint	1
Poor machine	4		
Machine trouble	1	*Individual Preferences*	
Dissatisfied with machine	13	Disliked partner	1
		Disliked surroundings	1
Routing of Work		Disliked large work room	1
Place had too much system	1	Indoor work too confining	1
Disliked system	2	Too many steps to climb	1
Had to wait too long for work	1	Did not know what she wanted	1
Work too different	1	Never satisfied—fourth trial	1
Objected to having work examined	1		
Changed machines too often	1	*Difficulty with Foreman or Rules*	
Wanted two machines	2	Dissatisfied with demotion	2
Disliked running three machines	1	Dissatisfied with foreman or forewoman	7
Wanted steady work on uniform product	1	Reprimanded for being lazy and left	1
		Too big for job	1
Type of Work		Dissatisfied with being docked when absent for no good reason	1
Wanted small work	1	Disliked rules	1
Wanted different work	9	Broke rules—did not report	1
Wanted coarse work	1		
Work too fine	3		
Work too hard on eyes	4	Grand Total	255

He is not satisfied to write down abstract reasons, but, instead, is keeping a record of value to the production manager and foremen in correcting difficulties. Unfortunately the records of many employment departments are useful merely in keeping a file clerk busy. As long as personnel executives are willing to write down "dissatisfied, resigned, left," etc., with no further comment, they are not getting far in coördinating their work with the employee nor are they securing information worth the expense of recording.

Up to this point the study has dealt with the organization and scope of the Department; methods of collection and standardization have been discussed. The last part of the study will be concerned with production conditions in the area and with a comparison of percentage rates and causes of turnover in public and private employments.

PART II

I—PRODUCTION CONDITIONS

I. Tendency of business movements in 1921, 183 — Turnover periods break in similar way, 183 — Movements inverse in 1921, similar in 1922, 183 — Contrast of men's and women's employment, 184 — Spotty character of production conditions in firms reporting, 184 — II. Firms fall into two groups for turnover percentage. First group goes upward to May, downward to December. Second groups follow each other with high turnover in summer, 188 — General tendency of lay off curve to follow total turnover curve, 190 — Summary description of charts II, III, IV, V, and VI, 190 — Quarterly variations follow monthly, 190 — Difficulty of classifying each main division of exit under its proper reason, 196 — Tendency to like movements found in period, 196 — Too much stress should not be put on voluntary character of resignations, 197 — Lay offs at separate plants, 197 — Many unanswered questions in connection with effect of lay offs, 197 — Discharges due to lack of skill, or connected with discipline, 199 — Opposite forces affect discharges in times of lay offs, 200 — Relation of resignations to lay offs, 200. — IV. Most important major reasons under resignations, 200 — Wage problems may differ although turnover under them be similar, 205 — Percentage under working conditions run parallel with type of manufacturing, 205 — Work elsewhere most important for further study, 206 — Home duties are important in firms employing women, 209 — Personal reasons mainly marriage, 209 — Physical reasons range from 2.1 per cent up to 13.4 per cent, 209 — V. Length of service of exits according to firms 1, 3, 6, 8, 10, 24, 210 — Why larger number of exits have shortest length of service, 210 — Factors involved in summary comparison of turnover in ten firms, 217 — Description of Chart XIII, 217 — VII. Public and Private Employment. Analysis of Chart XIII, 217 — Resignations differ widely. Discharge rates very similar, 221 — Conclusions, 223 — Less floating than is usually believed, 223 — Necessity for coördination of education and research, 225.

BEFORE considering the production conditions of plants in this area it is well to recall the general tendency of business movements during 1921. Professor Charles J. Bullock in the Review of Economic Statistics[1] summarizes thus:

> For the United States the year 1921 naturally divides into two periods, which were, respectively, of five and seven months' duration. From January to May the forces making for general liquidation had the upper hand, and commodity prices and business activity steadily declined. Improvement was indeed taking place in industries which had been the earliest to liquidate; but the general trend was downward, although at a perceptibly diminishing rate. This period marked the end of the wave of general liquidation which broke in the spring of 1920, and constituted the last phase of the business cycle which began early in 1919. In June the second period opened with an upward turn of commodity prices and business activity, which by August had brought substantial recovery from the trough of the depression. The fall months saw further improvement, although somewhat less than the seasonal amount; and then, with the approach of winter, came a normal slackening of trade and industry.

It will be seen in chapter three of this part of the study that Labor turnover was divided into periods of much the same duration, the high point of turnover falling in the April and May months.

A description of the production

[1] January, 1922, Vol. IV, p. 1.

conditions of separate plants is undertaken to show the general spotty character of manufacturing conditions. Wherever comparisons are later made in rates of turnover, this difference in production conditions should be recalled. Another consideration may well be borne in mind, when firms employing women are being compared with so-called men's industries. In the Philadelphia area there has been developed what, for the time being, might be considered a chronic condition of unemployment in the men's industries. The war production brought shipyards, electric supply houses, manufacture of turbine engines and many subsidiary metal trades. These industries have been dying out throughout the year. On the other hand, a number of women's industries have been developing during the same period: clothing, hosiery, mail-order and foreign-trading firms and a number of similar large industries employing women. During the year 1921, when the men's industries were either closed completely or working half time, it was almost as difficult to secure a supply of women's labor as it was at any time during the War. This situation must be taken into account when considering unemployment or labor turnover for plants employing both men and women.

NUMBER OF EMPLOYEES ON PAYROLL

Certain general deductions may be made, however, concerning manufacturing conditions by considering the number of employees on the payroll. Yet, when interpreting business conditions from such data, it must be borne in mind that other factors count in determining the actual production of the area. First, there was a growth of new enterprises, perhaps the most characteristic development of the past year. Some of this movement is reflected in the reasons for leaving plants, as will be seen later in the study, where attention is given to the occupations from which men resigned, giving as a reason, "to start in business for themselves." Another factor worth notice, though it must not be exaggerated, is the increase in the efficiency of employees. There are firms who report a uniform production despite a 40 per cent decrease in their payroll. This would indicate that, in certain cases, the amount of production has not fallen off in any way comparable with the decrease in number on the payroll.

During the year 1921, production conditions varied at the different plants in the research group. Firms No. 2 and No. 24 increased steadily; firm No. 1 was stationary; No. 3 showed a steady but little marked decrease; Nos. 4, 8, and 15 fluctuated, especially during the summer months; Nos. 6, 7 and 11 decreased spectacularly.

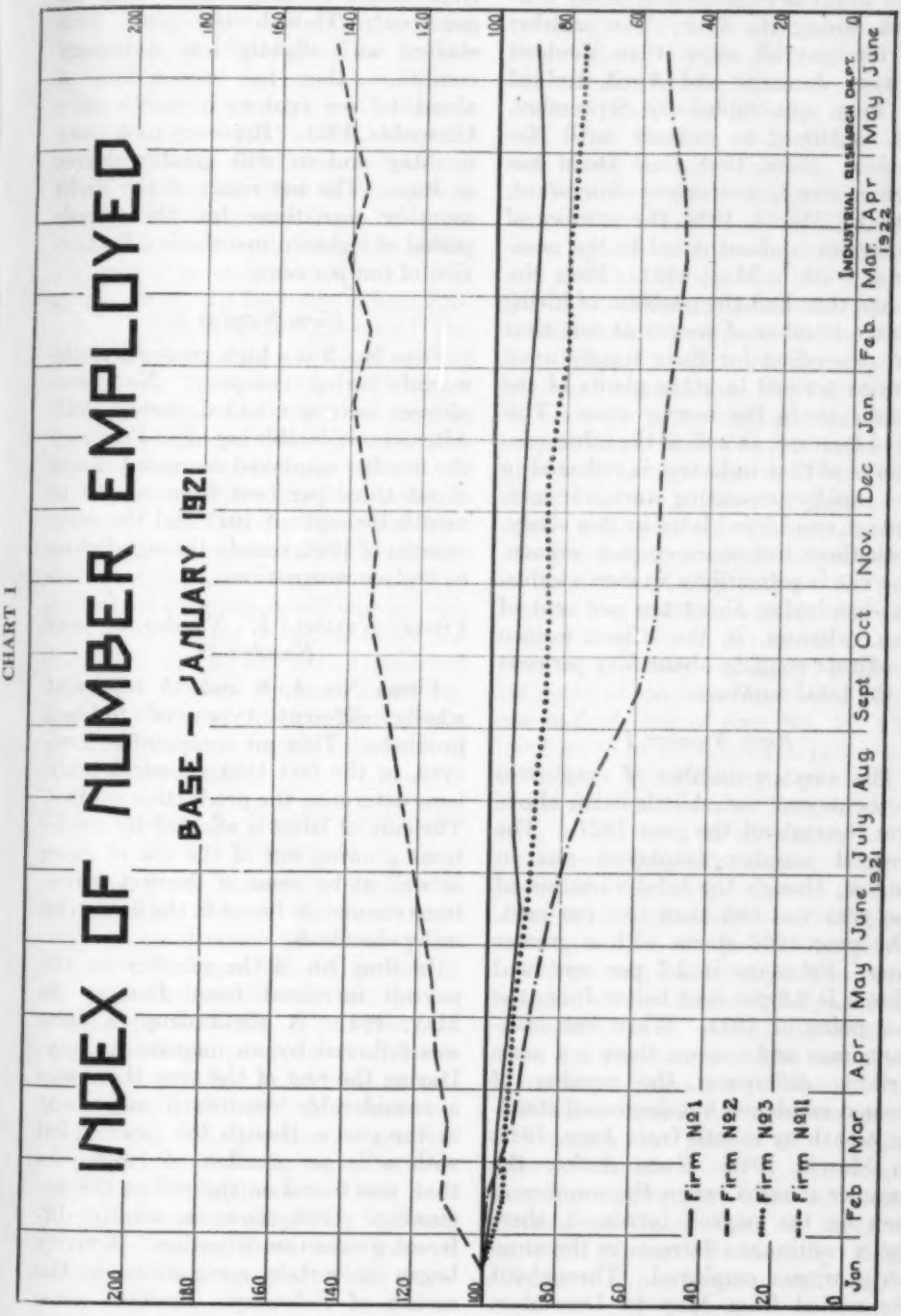
Chart I on page 185 illustrates the wide difference in production as shown by the index of number employed. The curve for firm No. 1 follows the base line closely, that for No. 2 moves gradually upward, increases no more than five per cent in any one month, yet maintains a two to three per cent regular monthly increase. Firm No. 11 shows not only the effect of the depression, but also the result of a post-war adjustment.

Firms Number 2 and Number 24

Firms No. 2 and 24 belong to a textile group; the one makes a specialized finished product, while the other manufactures a staple grade of cloth. Firm No. 2 grew very gradually, the number of employees on the payroll increasing throughout the early months of 1922 in about the same ratio as that of the months of the year 1921. Firm No. 24 had an increase compa-

CHART I

CHART I


INDEX OF NUMBER EMPLOYED
BASE – JANUARY 1921
200
180
160
140
120
100
80
60
40
20
0
Jan
Feb
Mar
Apr
May
June
July
Aug
Sept
Oct
Nov.
Dec
Jan.
Feb.
Mar.
Apr
May
June
1921
1922
Firm N91
Firm N92
Firm N93
Firm N911
INDUSTRIAL RESEARCH DEPT.

rable to the development of many concerns during the War. The number on the payroll more than doubled between January and April, trebled by June, quadrupled by September, and continued to increase until November. Since that time there has been a steady movement downward, until by March, 1922, the number of employees is about equal to the number at work in May, 1921. Firm No. 24 has thus had the problem of hiring a large number of people at one time and depending for their supply upon persons trained in other plants of the same type in the nearby area. This rapid increase, as well as the labor conditions of that industry, is reflected in the rapidly mounting turnover percentage considered later in this study. Both these industries employ women. The one is primarily a women's industry, employing about ten per cent of men, whereas, in the other, women constitute roughly about fifty per cent of the total number.

Firm Number 1

The average number of employees on the payroll varied little in the above firm throughout the year 1921. The greatest number employed was in August, though the total variation of the year was less than two per cent. The year 1922 starts with a greater drop. February is 2.7 per cent and March is 3.9 per cent below June, the low point of 1921. When one compares men and women, there is a more striking difference; the number of women employed has decreased steadily month by month from June, 1921, to March, 1922. Even during the summer months, when the number of men on the payroll increased, there was a continuous decrease in the number of women employed. Throughout the period from May to December, the number on the payroll did not vary from month to month more than 1.8 per cent. Though the year 1922 started with slightly less stationary conditions, there has been a drop of about 1.5 per cent each month since December, 1921. Recovery took place in May and in still greater degree in June. The net result of the slight monthly variations for this whole period of eighteen months is a fluctuation of ten per cent.

Firm Number 3

Firm No. 3 is a high grade specialty manufacturing company. New employees were not added during 1921. After a considerable lay off in February the number employed decreased slowly about three per cent from month to month throughout 1921 and the early months of 1922, mainly through failure to replace resignations.

Firms Number 4, Number 8 and Number 15

Firms No. 4, 8 and 15 represent wholly different types of finished products. They are comparable, however, in the fact that chemical problems determine the production control. The care of labor is affected by conditions growing out of the use of gases as well as by some of the wet operations commonly found in the industries using chemicals.

In firm No. 4 the number on the payroll increased from January to May, 1921. A slight drop in June was followed by an increase in July. During the rest of the year there was a considerable downward movement in the curve, though the year ended with a larger number of employees than was found on the roll at the beginning. 1922 shows a wholly different production situation. Activity began in certain occupations in the month of February. Business since then has made possible a reinstatement

of employees averaging 12 per cent monthly. The eighteen months end with one and one-half times as many employees on the payroll as in January, 1921.

Though the changes are within a very narrow range, firm No. 15 varies from month to month more than any other plant considered in the group. There is a downward point in the curve in March, July and December, 1921. The lowest point is that of July. The points above the base line are in January, April, June and October. Despite this upward and downward movement, there is only an average variation of about ten per cent in the number of people employed, the low point being, as already stated, in July, the corresponding high point in October. The whole of the year 1922 shows a continuous increase accelerated in the past three months. The revival of business conditions in this as in other plants is indicated by the fact that the period here considered ends with twenty per cent more employed than at the beginning—an increase which is largely the gain of the last five months.

Firms Number 6, Number 7, Number 10 and Number 11

These firms belong to the metal group. Firm No. 7 makes a large product, constructed wholly to order. It would be impossible to undertake any manufacture directly, except for actual specifications. Firm No. 11 makes a large proportion of order work, but supplies in addition standard products of world wide use and sale. Firm No. 6 makes a product sold only to manufacturers. Between January and September, 1921, firm No. 6 was reduced almost by half and since November there has been a slight increase, most of which took place in March, 1922. Firm No. 7 has had to reduce both absolutely and relatively more than any other of the firms cited. By August, 1921, half the number of employees at work in January had been dropped from the roll. By March, 1922 there were one fourth as many persons at work as there were at the beginning of the year 1921. The greatest decreases were lay offs of July and August. If one were to contrast the two firms of the most different production conditions it would be represented by firms No. 7 and 24. No. 24 increased by leaps and bounds, firm No. 7 decreased in much the same way and in similar proportions. Firm No. 11 ended the quarter January–March, 1922 with about half the number of persons at work employed in January, 1921. The greatest decreases of the year were in August and September. It thus lags a few months in this decrease behind firm No. 7, for which it supplies a necessary auxiliary product. Its ratio of decrease has been about one half of that of firm No. 7. The last firm to be considered in this group is No. 10. The difficulty of production in the first half year of 1921 caused a drop in the number of employees of almost two-thirds. Production readjustments and the development of the last months have increased the payroll above the normal pre-war production point.

The present condition of firms who joined after the middle of the year 1921 is omitted from special description, since the period covered is too short to make generalization possible.

Detailed figures are nowhere given to bring out the general spotty character of manufacture. It will, therefore, be important wherever comparisons are later made in rates of turnover, to review carefully these differences in production conditions.

II—COMPARISON OF ANNUAL TURNOVER RATES

Attention has just been directed to the marked differences in production conditions in the various firms reporting. Four firms had heavy lay offs during the year, but as they occurred at different times no significance can be attached to a comparison of monthly total turnover percentages, except perhaps to furnish a partial description of one phase of this depression. Since, however, such comparisons are currently made the figures are given in Table 1 in the appendix. It may be noted, in passing, that No. 1, a firm of low turnover and stationary employment, had its higher rates of turnover in January and May of 1921; by January, 1922, the rate was again high as contrasted with the last six months of 1921 with a similar drop in the months following. Firm No. 2, with an increasing payroll, had its high rate in March of 1921, and again in April of 1922; later months of 1922 drop back to normal.

Other comparisons will be discussed in connection with the relation between total turnover percentages and turnover percentages omitting lay offs. When the lay offs are subtracted, some striking resemblances appear in the general movement of turnover. Table 1 on the opposite page shows the turnover less lay offs. The firms considered fall into two groups. In the first group, which includes all but three firms, the turnover in 1921 was upward from January to April, and downward with slight variations, until the end of the year, when the upward movement, which continues until May of 1922, began again. The three firms excluded above resemble each other though they differ from the larger group. The highest turnover for these firms occurs in the summer and early fall months.

Considered individually, firm No. 1 increased until May and June and decreased until December. In January, 1922, the rate was almost double that of any month in the last part of 1921. Firm No. 2 increased until March of 1921, and decreased each month from that time until April and May of this year. Firm No. 6, a small plant of normally low turnover reached its highest point in May, 1921. The highest rate for firm No. 7 appears in April and May of 1921. From that time each month shows a lowered turnover until 1922 when the exits began to move upward until a new high point was reached in April and May, 1922. April and November range highest for firm No. 10. For this concern the turnover increased in March, 1922 and continued to rise still higher in April and May of this year. In a like way firm No. 11 shows a high point in March, 1921. It resembles the others in that it continued to decrease throughout 1921, but differs in that it has remained low during 1922. April, May and June were high turnover months for firm No. 24. The movement was downward during the rest of the year.

Let us now consider the smaller group of three firms which did not follow the general movement. Firm No. 4 shows a very striking difference in turnover during the summer months of 1921. The rate in July, August and September, with August as a central high peak, was almost double that of the other months of the year. It may be noted here that this firm has followed the larger group, already discussed, in its increased rate during March and April, 1922. April, as well as September and October, were high months for firm No. 8. In 1922 it increased during March and April.

TABLE 1—Turnover Percentage Less Lay Offs

19 Firms: January, 1921 to June, 1922

Month	No. 1	No. 2	No. 3	No. 4	No. 6	No. 7	No. 8	No. 9	No. 10	No. 11	No. 12	No. 14	No. 15	No. 16	No. 17	No. 18	No. 19	No. 21	No. 24
1921																			
Jan.	19.5	26.6	14.9	24.0	32.1	52.4	46.7	....	27.6	73.1	....	....	19.8	....	....	....	....	....	92.7
Feb.	15.0	82.7	15.7	26.0	12.3	52.0	51.0	....	30.4	68.4	....	....	3.3	....	....	....	....	....	34.1
Mar.	16.1	95.3	29.0	27.0	16.4	68.7	47.1	....	45.5	146.8	....	....	6.6	....	....	....	....	....	184.1
Apr.	23.1	51.6	29.4	36.0	26.5	84.8	69.6	....	66.6	67.7	....	....	13.7	....	....	....	....	....	204.3
May	26.9	39.3	27.0	26.2	35.4	74.1	23.2	....	55.9	70.1	....	....	36.4	....	....	....	....	....	212.5
June	29.4	54.7	36.0	33.5	15.7	61.6	31.5	....	29.4	59.9	....	....	32.3	....	....	....	....	....	245.5
July	19.4	45.4	14.0	63.2	0.0	48.8	16.2	....	51.4	52.0	....	....	12.0	....	....	....	....	....	162.4
Aug.	9.8	40.7	31.5	70.9	0.0	45.4	35.5	....	45.8	61.7	....	....	25.9	....	....	....	....	....	195.8
Sept.	12.0	42.9	14.5	66.5	21.3	54.4	64.6	....	43.9	50.9	....	....	34.6	....	....	....	....	....	185.3
Oct.	10.5	28.8	8.8	39.5	14.3	35.2	54.8	36.7	66.4	42.9	88.3	....	44.4	....	....	....	....	....	156.5
Nov.	7.2	37.9	11.6	32.6	7.1	42.7	33.8	0.0	30.6	28.7	....	....	10.3	114.0	46.8	146.9	....	....	144.4
Dec.	7.6	35.1	8.7	[a]17.8	6.9	25.8	35.7	27.0	51.4	27.5	....	....	7.4	128.2	19.8	....	....	25.5	75.0
1922																			
Jan.	24.1	34.5	3.0	18.3	6.9	37.2	19.3	52.7	46.8	26.6	66.1	33.8	18.1	71.9	96.6	117.3	6.3	26.9	168.9
Feb.	14.8	31.0	15.6	36.2	0.0	58.6	23.3	22.0	47.3	24.0	61.9	20.6	14.3	65.6	58.3	228.2	6.5	72.9	145.5
Mar.	18.0	31.5	6.3	51.8	19.9	76.3	98.0	103.5	81.4	43.0	83.8	27.3	39.2	127.1	48.6	204.9	18.3	127.5	167.7
Apr.	14.4	33.4	12.7	66.1	0.0	92.9	125.5	90.7	160.8	35.2	90.9	50.6	58.7	70.2	54.4	296.7	15.3	116.0	148.8
May	15.9	56.2	16.2	83.5	6.5	94.5	140.2	173.7	171.4	57.6	104.9	105.8	165.5	204.6	54.9	242.5	18.7	201.5	236.4
June	18.8	48.9	26.1	119.0	12.8	77.5	163.2	216.6	120.3	64.8	83.0	107.3	147.8	90.9	33.1	182.2	35.4	202.2	249.6

[a] Estimated.

Firm No. 15 really falls between the two groups. It has a high rate in April and again in October, 1921. Despite the fact that it is a firm of low average turnover, it has followed other firms in the increase of March and April this year.

In considering the turnover with lay offs omitted, the likeness in direction of movement is more striking than the differences. Whether community influences, market conditions or seasonal factors are to be considered dominant in shaping this likeness, can be determined only after longer study.

Four separate charts are presented on the adjoining page for individual firms showing the relation of the turnover percentage when figured with and without lay offs. Lest anyone mistake the figures here given for monthly percentages, statement of the method of computation is repeated. Everywhere throughout this study calculations are made on an annual basis, the method being:

If the figures cover terminations for a four-week period, multiply the number of terminations by 13 to get the number that would occur during the year at the same rate. If the figures cover a five-week period multiply by 10.4 because five weeks go into the 52 weeks in a year ten and four-tenths times. If a calendar month is used multiply by twelve. Dividing this number by the average payroll for the month gives the turnover on a yearly basis.

The tendency of the two curves to follow each other is very marked in the case of firms No. 1 and 2. Firm 11 has three periods of lay offs. In the first period, resignations followed lay offs closely, in the later period the correspondence is less marked. There is a general tendency for the curve of firm No. 8 to follow the total turnover curve. The lay off curve follows the high points of the total curve in April, August and September, and again in March and April, 1922. The movement is in the opposite direction in October and November. Charts of Turnover Percentage Less Lay Offs are shown for seven groups of firms. (Charts III and IV on pages 192 and 193). A combined chart for ten plants offers an opportunity to contrast the separate firms with the group.

Summarizing, one may say that in the early months of 1921 the tendency of turnover was upward, reaching its highest point in the individual firms in the late weeks of March or in the month of April. The general downward movement from then until December is very striking. All curves soared during the early months of the year. June figures indicate that the trend is again downward. Charts V and VI show the relation between the total turnover and turnover less lay offs for the firms shown in Chart I.

QUARTERLY TURNOVER

The quarterly turnover shows more clearly the similarities already noted. Firms No. 2 and No. 11 are the only ones in the first group where the April to June quarter is not the maximum percentage. Each of these firms had a high rate in March, which placed the average in the first quarter. Firms No. 4, No. 8 and No. 15 fall in the group with its highest rate in the summer. Four and fifteen have high points in the July to September quarter. The variation from quarter to quarter is not great in firm No. 8 and the turnover of the April to June quarter is accounted for by the way in which resignations followed lay offs in April.

In 1922 the general tendency for the April to June quarter is in the direction of higher less lay off rates. The period covered is not long enough for

CHART II

CHART II

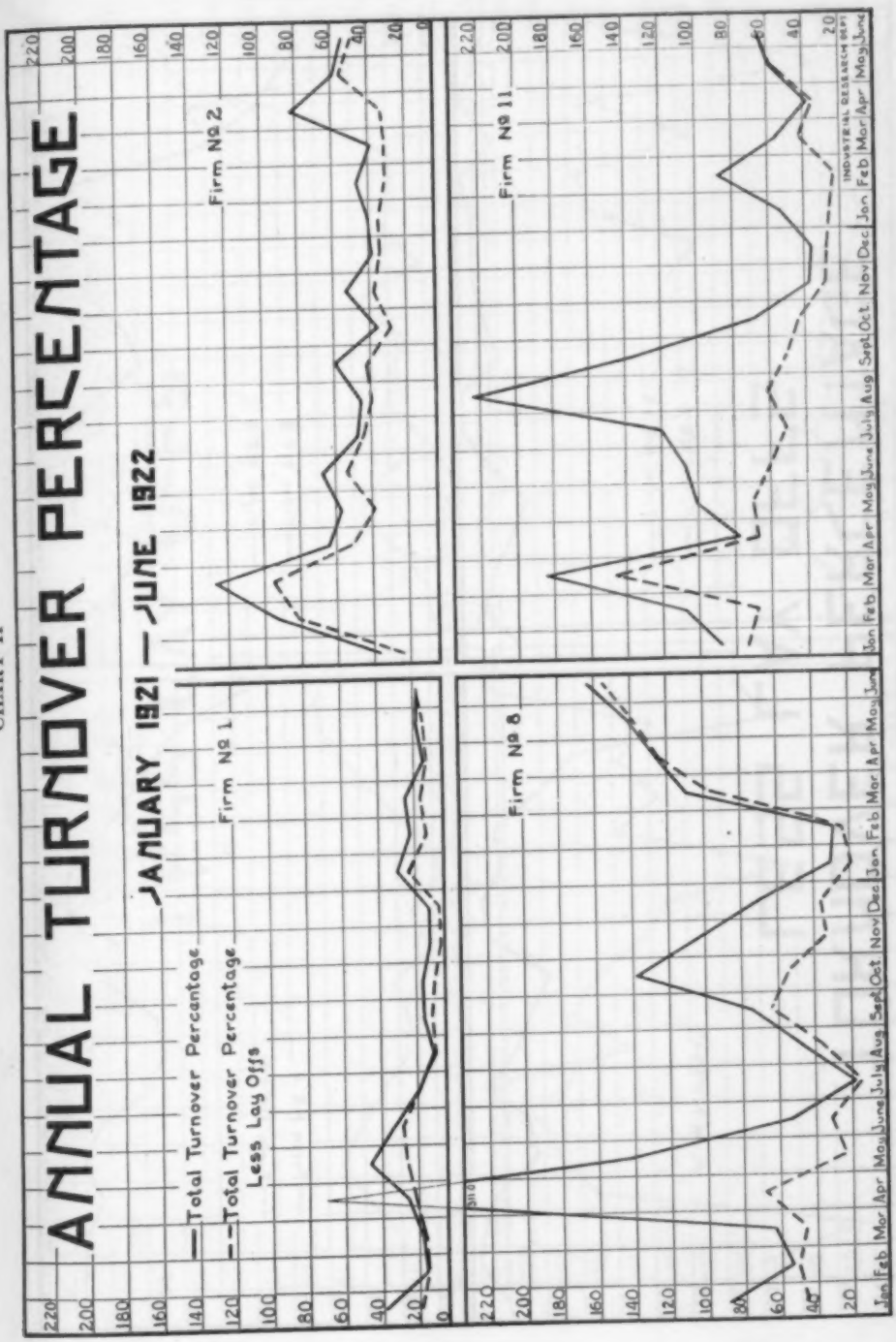

ANNUAL TURNOVER PERCENTAGE
JANUARY 1921 — JUNE 1922
Total Turnover Percentage
Total Turnover Percentage Less Lay Offs
Firm No 1
Firm No 2
Firm No 8
Firm No 11
INDUSTRIAL RESEARCH DEPT.

CHART III

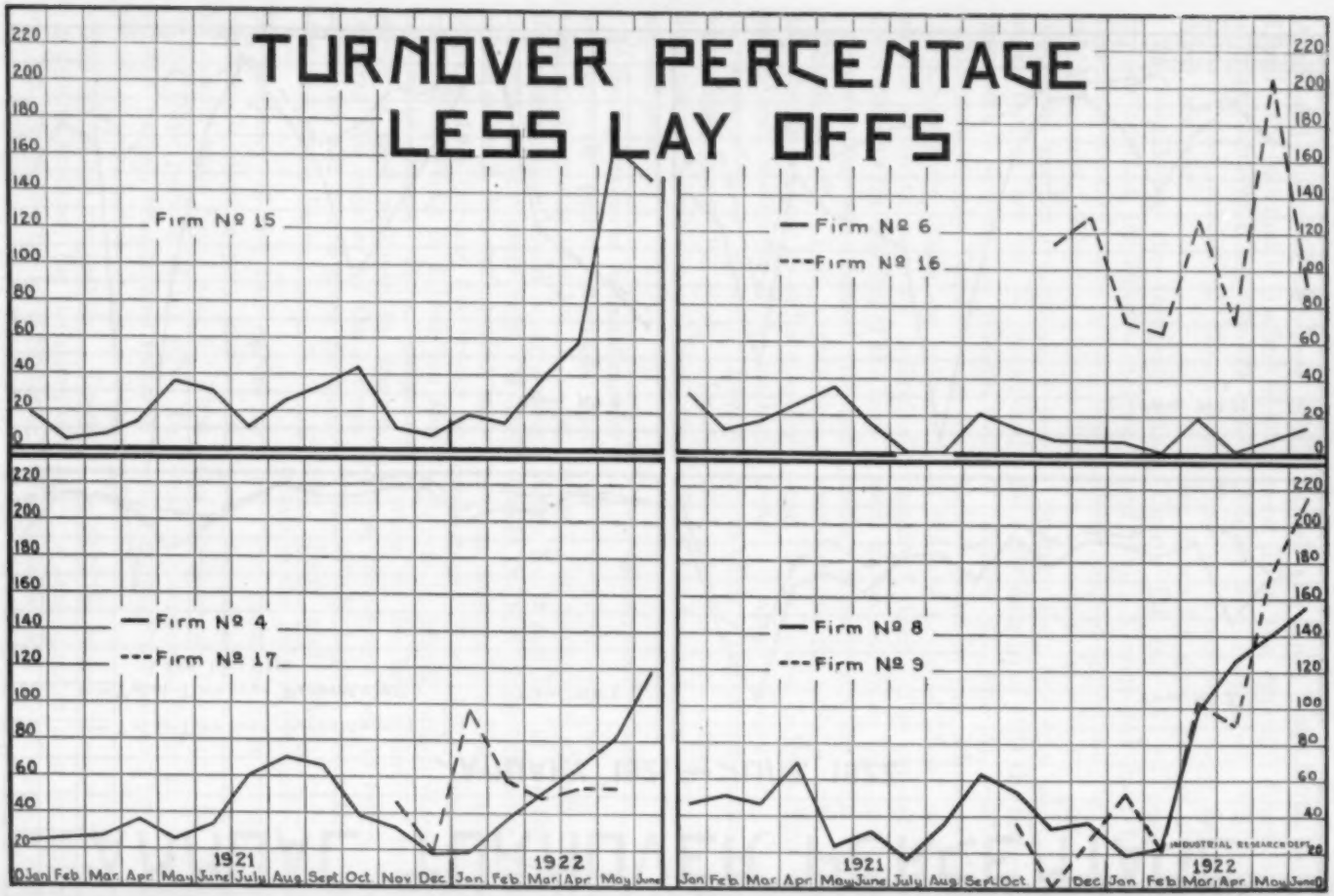

TURNOVER PERCENTAGE
LESS LAY OFFS
Firm № 15
Firm № 6
Firm № 16
Firm № 4
Firm № 17
Firm № 8
Firm № 9
1921
1922
INDUSTRIAL RESEARCH DEPT.

CHART IV

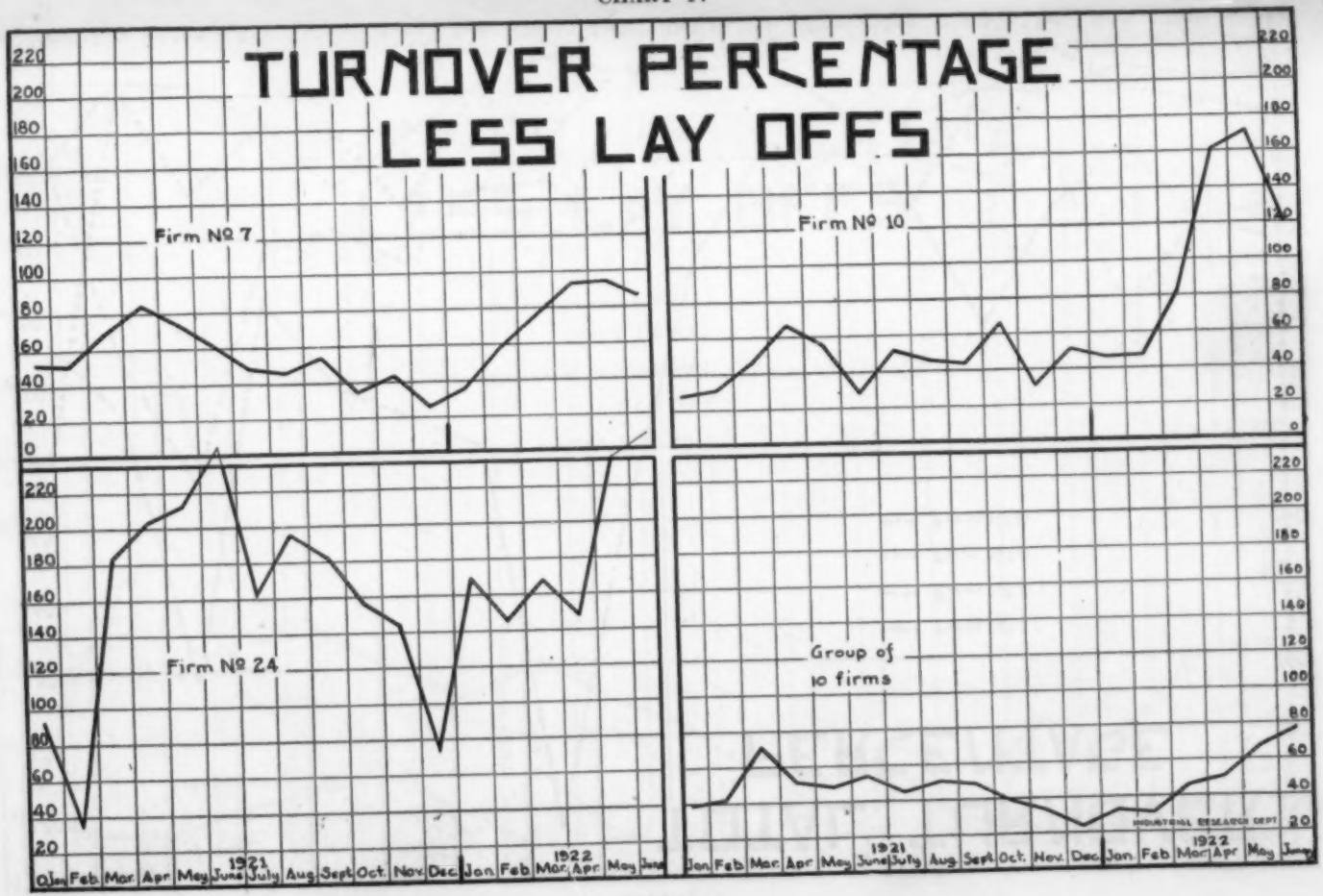

TURNOVER PERCENTAGE
LESS LAY OFFS
Firm No 7
Firm No 10
Firm No 24
Group of
10 firms
INDUSTRIAL RESEARCH DEPT
Jan Feb Mar Apr May June July Aug Sept Oct Nov Dec Jan Feb Mar Apr May June
1921
1922

CHART V

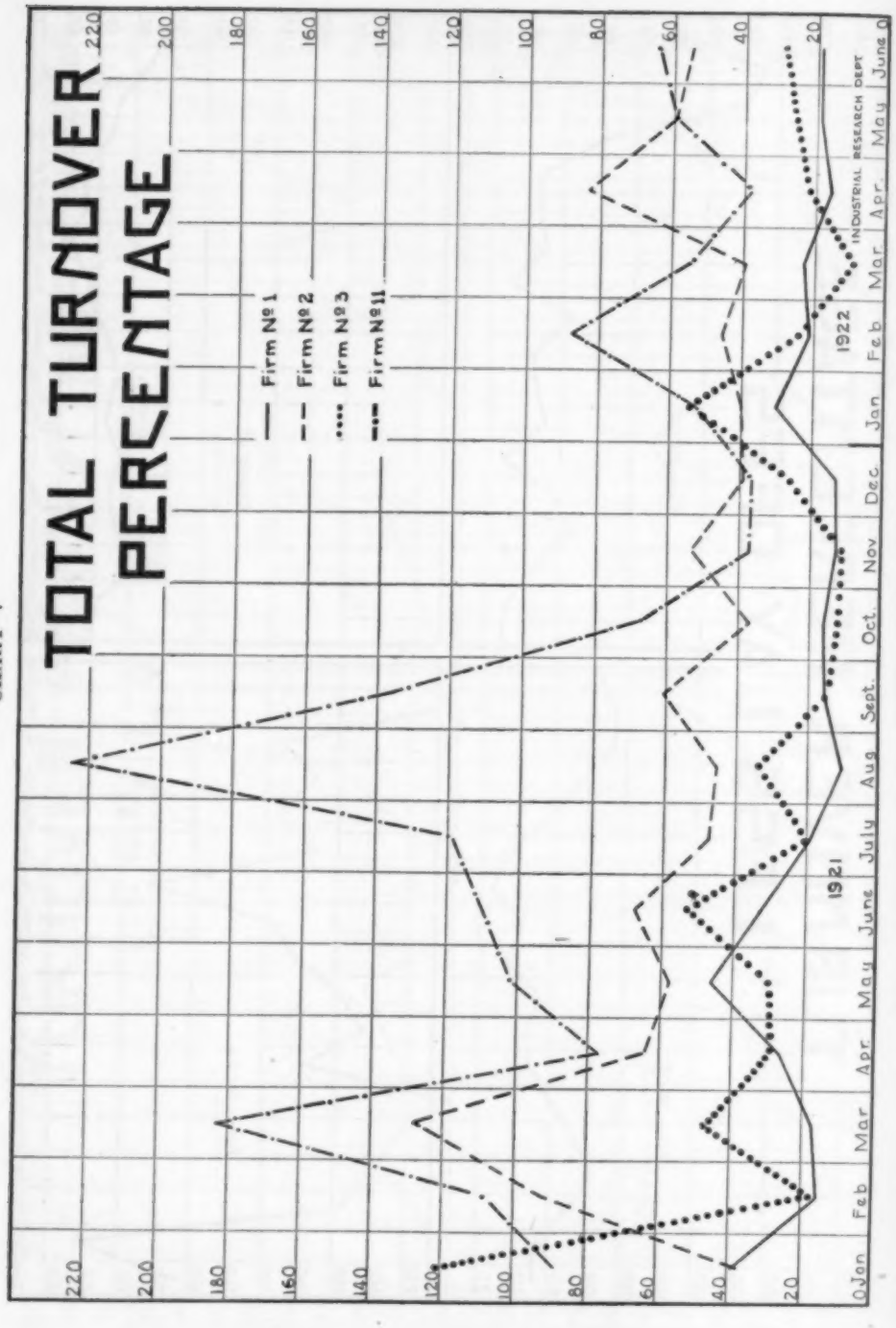

TOTAL TURNOVER PERCENTAGE
Firm No 1
Firm No 2
Firm No 3
Firm No 11
INDUSTRIAL RESEARCH DEPT
1921
1922
Jan Feb Mar Apr May June July Aug Sept. Oct. Nov Dec. Jan Feb Mar Apr May June
0 20 40 60 80 100 120 140 160 180 200 220

CHART VI

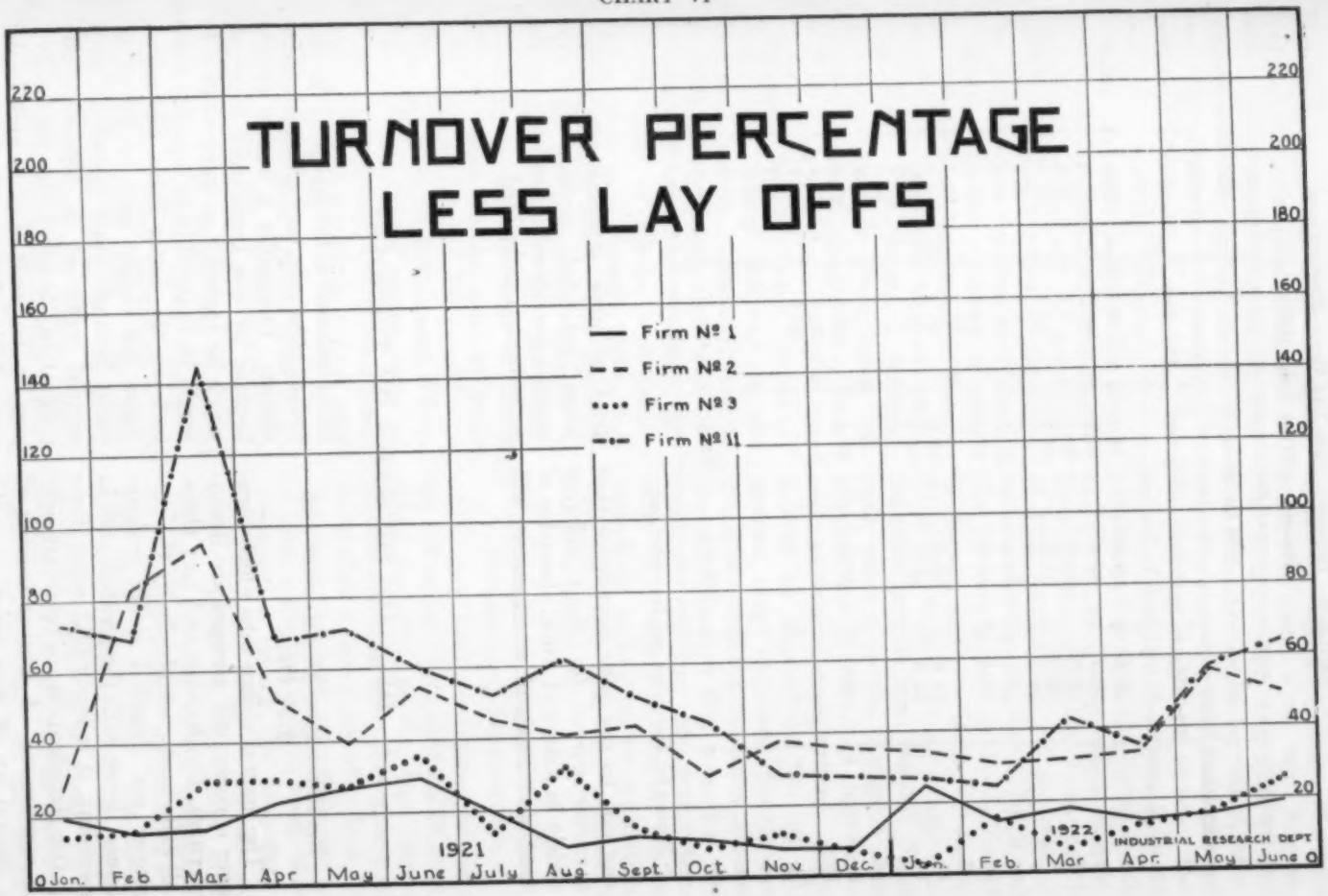

TURNOVER PERCENTAGE
LESS LAY OFFS
Firm Nº 1
Firm Nº 2
Firm Nº 3
Firm Nº 11
220
200
180
160
140
120
100
80
60
40
20
0
Jan.
Feb
Mar
Apr
May
June
July
Aug
Sept
Oct
Nov
Dec.
1921
Jan.
Feb
Mar
Apr
May
June
1922
INDUSTRIAL RESEARCH DEPT.

TABLE 2—TURNOVER LESS LAY OFFS—PERCENTAGES

January, 1921 to June, 1922

FIRM NUMBER	1921 QUARTERS				1922 QUARTERS	
	Jan.–March	April–June	July–Sept.	Oct.–Dec.	Jan.–March	April–June
1	16.8	26.6	13.4	8.3	18.9	16.3
2	69.7	48.6	43.0	33.9	31.8	46.3
3	19.8	30.8	20.0	9.8	10.9	18.2
4	25.6	31.8	66.8	30.2	36.6	79.2
6	20.4	25.9	6.5	9.4	9.1	6.45
7	57.1	75 5	50.3	37.0	57.8	83.4
8	48.4	44.0	39.6	41.2	47.0	140.0
9	....	....	....	21.3	64.1	165.9
10	34.0	50.9	47.0	49.4	58.6	140.7
11	94.9	66.1	55.0	33.1	31.0	53.1
12	....	....	....	....	70.5	92.9
14	....	....	....	....	27.2	89.6
15	9.9	19.0	24.4	21.8	23.9	128.1
16	....	....	....	120.7[a]	88.1	121.8
17	....	....	....	33.4	68.7	47.6
18	....	....	....	....	189.2	239.2
19	....	....	....	....	10.3	23.2
21	....	....	....	....	76.2	179.7
24	110.2	222.2	181.8	126.1	160.4	207.5

[a] Figures for November and December only.

any one to say with confidence that turnover curves for firms differing widely in nature of work, character of men, and ideals of management will tend to move synchronously over a more extended period. For the months considered, a tendency to like movement is undoubted.

III—MAIN DIVISIONS OF TURNOVER

RESIGNATIONS, DISCHARGES AND LAY OFFS

The main divisions into which turnover is commonly grouped are RESIGNATIONS, DISCHARGES and LAY OFFS. All exits made voluntarily by the employee are classified under resignations. Even with the greatest care in recording, it is likely that some items in this classification are voluntary only in appearance. A worker hearing of a general lay off may resign to avoid being included in the group, or, having broken some rule, may anticipate a discharge. Frequently a worker resigns because he was transferred to a job which he regarded as unpleasant. It would be impossible to separate cases such as the latter from discharges. Again the family may be forced to move because other members have secured work at a distance. The resignation "to move with the family" may be the result of slack work in the area which affected home life, while

the plant from which the exit resigned has not actually been affected. All these qualifications should be considered whenever anyone stresses the voluntary character of turnover.

Lay Offs

Since, owing to the depression situation, lay offs affected industrial morale most, that group will be considered first, even though it had not the highest coefficient in the main divisions of turnover. In the reporting of turnover it would be very desirable if some subdivision could be secured under "laid off." Lay offs due to business conditions include cancellation of orders, seasonal fluctuations, temporary work and the series of factors commonly lumped under "industrial depression." Very different is the group of specific reasons relating to manufacturing conditions, such as: changes in industrial processes, discontinuance of whole departments, breakdowns in equipment, shortage of materials and strikes and lockouts. All these are now being reported as "lay offs," "slack," or "no work," with no specific statement of reason. In time more detailed analysis under this heading should be possible. A start has been made this year. From a few firms, careful reasons were secured. No analysis is given of such detail as it is specific in only a small number of cases.

The significant lay offs were in the metal and iron working products. Textiles and clothing were fairly steady, while chemicals fluctuated without any long period of inactivity.

Firm No. 2 was highest in March, 1921 and April, 1922. The latter "lay off" was halted by the strikes in the New England textile regions, which diverted orders to this market. No. 4 had its heaviest lay offs in October, while No. 6 started to lay off in March. Three higher lay off peaks occur in April, June and August. The year for this organization was thus characterized by lay offs at intervals of two months, until October when the industry began to revive. The lay off of firm No. 7 ranged from 16 per cent in February, the lowest month of the year, to 408 per cent in August. Five months of 1921 and one month of 1922 were above 100 per cent of turnover for lay offs alone. No. 8 and No. 10 were highest in April, No. 11 in August, and No. 15 in November. Firm No. 24 did not begin any considerable lay offs until the end of the year, when a sudden change in style affected the likelihood of the movement of finished stock on hand. Considered by themselves, the lay offs present only unrelated phenomena, useful in describing the down wave of the depression in this area, but not especially useful in interpreting turnover. It is only when the lay offs are considered in relation to resignations and discharges that the comparison becomes important.

"Lay Offs" in Relation to Resignations and Discharges

Do men hold onto their jobs in a lay off period? Do they try to anticipate lay offs, or do they become restless and look about for other positions after a heavy lay off? Is it the best men who hold onto their jobs or is there a gradual melting away of an organization during the long drawn out downward swing of business activity? These are questions worth asking in the light of the correspondence of high peaks of resignations with high peaks of lay offs. The answer cannot be deduced from the figures. Attention would be necessary to the workers left on the roll as well as to those who departed. It may be that the likenesses here found would not

TABLE 3—RESIGNATION TURNOVER PERCENTAGE

19 Firms, January, 1921 to June, 1922

MONTH	No. 1	No. 2	No. 3	No. 4	No. 6	No. 7	No. 8	No. 9	No. 10	No. 11	No. 12	No. 14	No. 15	No. 16	No. 17	No. 18	No. 19	No. 21	No. 24
1921																			
Jan.	18.8	23.2	14.9	20.0	8.0	39.3	26.7	....	22.1	46.8	....	....	13.2	....	....	....	....	....	87.8
Feb.	14.3	66.6	15.7	22.0	12.3	37.6	27.7	....	30.4	45.8	....	....	0.0	....	....	....	....	....	26.2
Mar.	15.5	80.6	15.8	22.0	16.4	59.3	32.5	....	45.5	132.5	....	....	3.3	....	....	....	....	....	168.2
Apr.	22.7	45.6	26.7	28.0	22.1	71.7	38.2	....	66.6	51.5	....	....	10.3	....	....	....	....	....	178.5
May	26.2	34.8	27.0	22.0	30.3	62.8	19.6	....	55.9	60.1	....	....	36.4	....	....	....	....	....	191.1
June	28.5	49.0	36.0	27.4	15.7	52.7	30.0	....	24.5	50.1	....	....	28.7	....	....	....	....	....	213.2
July	18.3	34.2	11.2	48.5	0.0	42.9	11.3	....	46.3	46.1	....	....	8.0	....	....	....	....	....	136.4
Aug.	8.3	33.3	28.7	59.9	0.0	42.1	27.8	....	40.7	51.1	....	....	18.5	....	....	....	....	....	159.0
Sept.	11.6	31.0	8.7	53.1	7.1	51.5	45.5	....	39.0	47.6	....	....	27.7	....	....	....	....	....	156.9
Oct.	9.4	21.8	8.8	33.8	14.3	31.7	47.0	21.0	44.3	41.1	66.4	....	38.1	....	....	....	....	....	151.4
Nov.	6.6	27.6	8.7	27.3	7.1	42.4	31.5	0.0	13.1	25.7	....	....	6.9	77.1	38.5	134.7	....	....	118.8
Dec.	6.8	27.6	8.7	*17.1	6.9	24.9	31.9	9.0	34.3	24.5	....	....	3.7	99.7	11.3	....	....	25.5	50.9
1922																			
Jan.	20.3	28.3	3.0	17.6	6.9	35.1	12.4	30.8	38.3	24.7	52.1	25.4	10.9	53.1	79.0	81.2	4.7	23.5	153.0
Feb.	10.1	23.4	12.5	30.5	0.0	53.2	19.2	13.2	30.1	23.4	42.5	20.6	14.3	37.1	49.1	206.1	6.5	69.6	134.4
Mar.	14.2	27.3	6.3	39.7	19.9	70.3	58.5	74.4	55.7	40.3	57.9	23.4	28.5	91.6	42.2	181.5	16.6	111.2	148.5
Apr.	13.2	25.8	12.7	55.5	0.0	88.7	87.4	72.6	123.7	29.8	68.7	38.9	52.2	24.4	44.8	263.7	11.9	106.1	139.4
May	13.4	49.6	9.7	71.1	6.5	83.6	122.1	145.9	137.1	50.1	85.8	83.9	157.2	155.6	45.2	217.6	17.0	189.8	222.1
June	16.5	40.6	22.8	102.0	6.4	74.2	135.4	180.8	56.4	57.0	68.7	100.8	145.0	45.45	33.1	163.4	28.7	209.5	235.9

* Estimated.

occur in a more stable period. When all industries are unstable and especially when part-time is being worked, it is possible that the cause operating is really slack work which shows itself in resignations. It may be that there is a permanent connection between resignations and discharges. Occasionally there is reported a resignation because a friend or relative has been discharged. The importance of such relationships can be discovered only when data are available covering a sufficient period to make possible correlations between reasons.

The monthly turnover for Lay Offs by firms is given in Table 2 in the appendix; similar figures for Resignations are shown in Table No. 3 on page 198.

Discharges

The percentage of men discharged monthly is not significant for the small firms. The whole discharge turnover of one firm is made up of seventeen men dropped in April, whereas no more than two men were discharged in any other month in the year. Quarterly rates are, therefore, given instead of monthly comparisons. In a period of lay offs, it would be likely for the discharge rates to rise since inexperienced workers and infringement of rules of discipline would be less leniently dealt with. At the same time there is an opportunity to drop incompetent workers among the persons laid off, thus tending to lower the turnover for discharges.

The discharge rates of turnover by firms quarterly were as shown in table No. 4 below.

It will be seen that there is no uniformity among firms in the quarter in which the high rate falls. Firms No. 2, 10 and 24 have the highest discharge rates in the months when the

TABLE 4—Discharge Turnover Percentages
January, 1921 to June, 1922

Firm Number	1921 Quarters				1922 Quarters	
	Jan.–March	April–June	July–Sept.	Oct.–Dec.	Jan.–March	April–June
1	0.6	0.7	1.0	0.8	4.1	2.1
2	11.7	5.4	10.2	8.3	5.9	7.5
3	4.3	0.9	3.8	1.0	1.5[a]	3.2
4	3.9	5.9	13.0	4.0	6.6	11.8
6	8.3	3.2	4.4	0.0	0.0	2.15
7	12.4	11.4	4.5	1.9	4.6	5.9
8	19.3	14.0	10.8	4.6	16.9	25.5
9	....	....	....	11.5	21.0	28.0
10	2.0	1.7	5.0	18.9	17.2	45.5
11	21.2	12.1	6.8	2.6	1.7	7.0
12	....	....	....	....	19.7	18.5
14	....	....	....	....	4.1	13.2
15	4.4	2.4	6.1	4.6	6.0	5.9
16	....	....	....	32.8[b]	27.7	46.3
17	....	....	....	8.4[b]	11.3	6.5
18	....	....	....	....	26.3	25.4
19	....	....	....	....	1.1	4.0
21	....	....	....	....	7.7	4.0
24	10.7	26.7	30.5	18.2	15.3	12.1

[a] February and March, 1922.
[b] November and December, 1921.

payroll was being increased most rapidly. It would be very desirable to be able to distinguish discharges owing to inability to learn the work or incompetence after the work is learned, from discharges due to socially undesirable qualities or to infraction of rules. While employment managers report in general terms, "unreliable," "dissatisfaction," etc., it will be impossible to separate discharges sufficiently to distinguish between disciplinary reasons, and reasons connected with training and skill.

Particular attention is called to the low discharge rate. In interpreting the table bear in mind that the computation is on an annual basis. Note that in the case of almost half the firms the annual discharge rate is below five per cent, showing in firms where selection and training are well conducted how very low the number of dismissals can be kept. Two firms in this group each employ 3,500 to 4,000 employees, others have smaller payrolls. Even a firm that is increasing its payroll is clearly out of step with others when its discharge rate soars above an annual percentage of fifteen. Of course, if discharges were the usual instead of an occasional occurrence in departments, workmen would not show the humiliation that they do when a discharge occurs. This point needs to be emphasized because of the surprise expressed by non-business audiences wherever the work of the department was discussed. In chapter VII of this part of the study Chart No. XIII (see page 219) is shown comparing the turnover of public and private employment. The closeness with which these curves approximate each other was a matter of surprise to investigators especially in view of the differences in the coefficient of turnover for resignations in the two groups. More striking is the difference in length of service of discharges. It would seem as if the one department with high turnover in public employment used discharge as a means of selection whereas in private industries, discharges in so far as one can go by the reasons assigned, were more closely related to the character of the worker.

IV—RESIGNATIONS

Because of the importance of voluntary exits more attention has been given by the Department to securing accuracy in the reporting and classification of major reasons under resignations than to the other two main divisions. From the resignation turnover percentages given monthly in Table 3, printed above, it will be seen that the demarcation of firms into those with their highest rate of the year in the spring months, and those with the highest rate in the summer and early fall months, was a division dependent upon resignations. In the quarterly Table No. 5, printed on page 202, the high points of the spring months, as earlier noted in the discussion of turnover less lay offs, appear far more clearly than in the monthly turnover figures of Table 3, page 198. This would be inevitable unless discharges had been high enough to outweigh the influences making for uniformity in the resignations of employees from plants.

RESIGNATIONS BY MAJOR REASONS

Analysis of resignations by major reasons shows some interesting con-

CHART VII

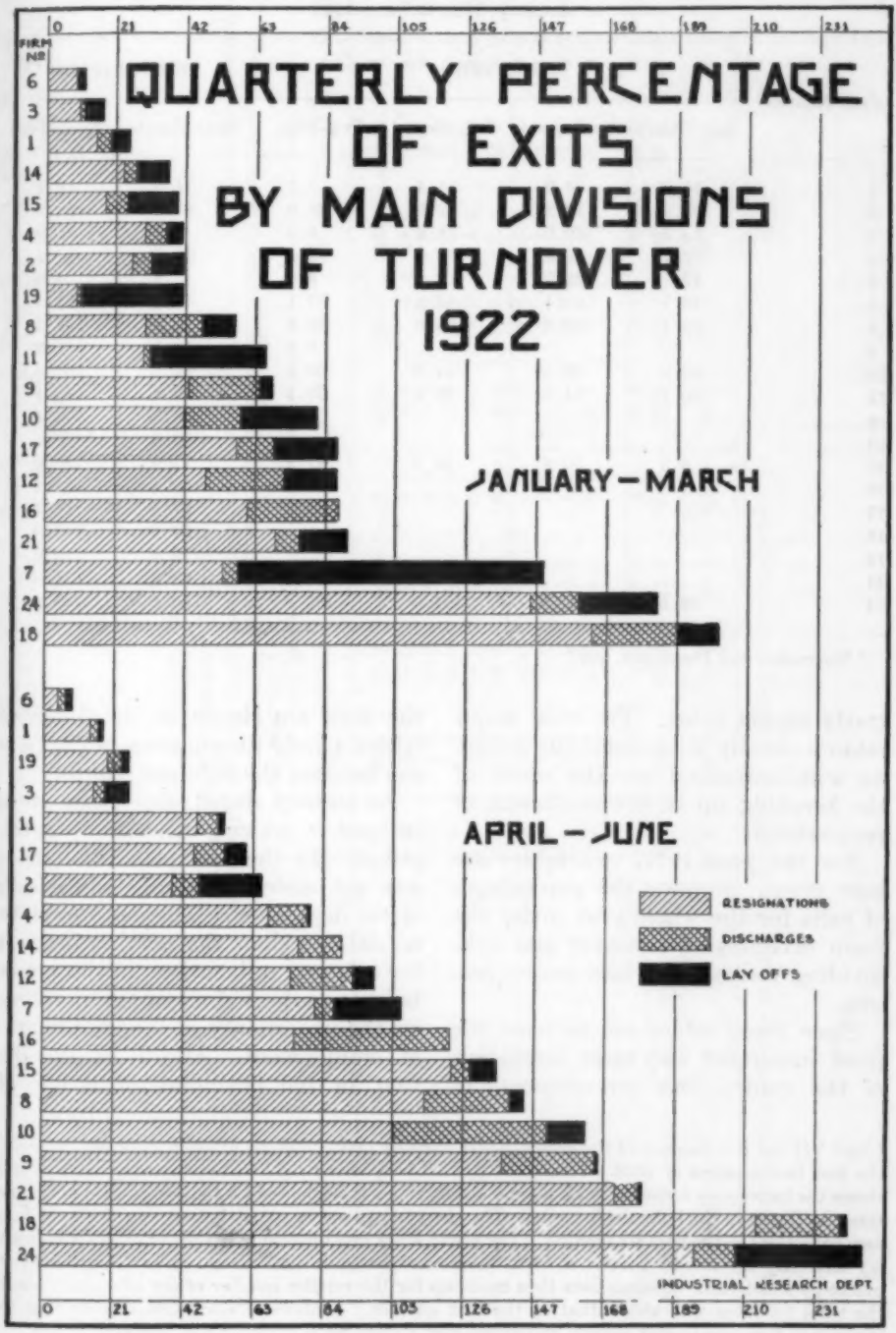

QUARTERLY PERCENTAGE OF EXITS BY MAIN DIVISIONS OF TURNOVER 1922
JANUARY – MARCH
APRIL – JUNE
RESIGNATIONS
DISCHARGES
LAY OFFS
INDUSTRIAL RESEARCH DEPT.
FIRM NO.
0 21 42 63 84 105 126 147 168 189 210 231

TABLE 5—RESIGNATION TURNOVER PERCENTAGES

January, 1921 to June, 1922

FIRM NUMBER	1921 QUARTERS				1922 QUARTERS	
	Jan.–March	April–June	July–Sept.	Oct.–Dec.	Jan.–March	April–June
1	16.2	25.9	12.4	7.5	14.8	14.2
2	58.0	43.2	32.8	25.6	25.9	38.8
3	15.5	29.9	16.2	8.8	9.4	15.0
4	21.7	25.9	53.8	26.2	30.0	67.4
6	12.1	22.7	2.1	9.4	9.1	4.3
7	44.7	64.1	45.8	35.1	53.2	81.5
8	29.1	30.0	28.8	36.6	30.1	114.5
9	....	....	....	9.8	43.1	137.9
10	32.0	49.2	42.0	30.5	41.4	105.2
11	73.7	54.0	48.2	30.5	29.3	46.1
12	....	....	....	....	50.8	74.4
14	....	....	....	....	23.1	76.4
15	5.5	16.6	18.3	17.2	17.9	122.2
16	....	....	....	87.9*	60.4	75.1
17	....	....	....	25.0*	57.4	41.1
18	....	....	....	....	162.9	213.8
19	....	....	....	....	9.2	19.2
21	....	....	....	....	68.5	171.8
24	99.5	195.5	151.3	107.9	145.1	195.4

* November and December, 1921.

trasts among firms. The nine major reasons already discussed in the section on standardization are the result of the breaking up of the coefficient of resignations.

For the year 1921, two tables are here given, grouping the percentages of exits for the whole year under the main divisions of turnover and subdividing resignations into major reasons.

Since these tables are perhaps the most important and most significant of the study, both arrangements of the data are shown in the following tables, purely for purposes of comparison between the different groups.

As already stated, much care must be used in drawing conclusions in this period. In the first place, the study was not undertaken until the middle of the depression. There is, therefore, no data to show the relation between lay offs and resignations in the period before workers became demoralized by the uncertainty of the continuance of employment. Also it is possible that in the beginning of a lay off

Chart VII is a bar diagram of the percentage of exits by main divisions in nineteen firms. It covers the first two quarters of 1922. The shifting of all bars to the right in the second quarter of 1922 shows the increase in turnover in all plants, a shift which is accounted for by the increase in resignations, as shown in the light shaded area. The chart brings out in a striking way the change in business conditions in the past six months. The heavy black cross-hatching in the bar diagram indicates lay offs. By the second quarter of 1922, these black areas, in most firms, either disappear or are markedly shortened. Resignations thus made up for the smaller number of lay offs, and brought the total turnover well above that of the first quarter. Analysis of occupations shows that the increase in turnover in this quarter was occasioned mainly by mobility in the "laborer" group.

TABLE 6—Annual Turnover Percentage[a]

By Major Reasons: 1921—Eleven Firms

Reason	January to December										
	No. 1	No. 2	No. 3	No. 4	No. 6	No. 7	No. 8	No. 10	No. 11	No. 15	No. 24
Resignations (Total)	15.5	38.9	17.7	32.7	12.6	49.1	29.3	37.3	54.7	14.2	140.2
1. Wages	0.03	0.3	0.0	0.6	0.5	0.7	0.2	13.2	6.6	1.4	38.9
2. Working conditions	0.71	4.5	1.2	6.6	0.9	1.4	2.0	2.8	4.6	6.1	29.2
3. Hours	0.0	0.3	0.0	0.0	0.0	0.0	0.0	2.5	1.0	0.3	0.6
4. Labor Policy	0.0	0.3	0.0	0.0	0.0	0.0	0.3	5.9	0.0	0.6	7.7
5. Work Elsewhere	5.1	6.2	6.2	11.6	8.1	8.8	14.0	3.8	22.8	3.5	17.7
6. Community and Family	1.6	7.2	0.0	0.2	0.0	0.2	1.6	3.8	1.8	0.0	18.9
7. Personal	6.1	7.7	0.0	5.2	1.8	7.6	1.7	1.8	7.9	1.4	6.2
8. Physical	1.9	6.8	0.2	8.5	1.3		2.8	2.8	3.8	0.9	12.8
9. Unknown	0.06	5.6	10.1	0.0	0.0	30.4	6.7	0.7	6.2	0.0	8.2
Discharges	0.8	8.8	2.5	7.0	4.5	9.1	11.5	6.6	12.1	4.4	22.7
Lay Offs	5.7	12.1	15.5	23.9	48.4	86.8	54.9	96.2	44.0	22.9	20.1
Total	22.0	59.8	35.7	63.6	65.5	145.0	95.7	140.1	110.8	41.5	183.0

[a] *i. e.*, Percentage of the average number of total employees calculated on an annual basis.

TABLE 7—TURNOVER PERCENTAGE OF EXITS
By Major Reasons: 1921—Eleven Firms

REASON	JANUARY TO DECEMBER										
	No. 1	No. 2	No. 3	No. 4	No. 6	No. 7	No. 8	No. 10	No. 11	No. 15	No. 24
Resignations (Totals)	70.6	64.9	49.7	51.5	19.2	33.9	30.6	26.6	49.4	34.3	76.6
1. Wages	0.1	0.5	0.0	1.0	0.7	0.5	0.2	9.5	5.9	3.5	21.2
2. Working conditions	3.2	7.5	3.2	10.4	1.4	0.9	2.1	2.0	4.2	14.7	16.0
3. Hours	0.0	0.5	0.0	0.0	0.0	0.0	0.0	1.8	0.9	0.7	0.3
4. Labor Policy	0.0	0.5	0.0	0.0	0.0	0.0	0.3	4.2	0.0	1.4	4.2
5. Work Elsewhere	23.3	10.4	17.4	18.2	12.3	6.1	14.6	2.7	20.6	8.4	9.7
6. Community and Family	7.3	12.0	0.0	0.3	0.0	0.1	1.7	2.7	1.7	0.0	10.3
7. Personal	28.0	12.8	0.0	8.2	2.7	5.3	1.8	1.2	7.1	3.5	3.4
8. Physical	8.5	11.4	0.7	13.4	2.1		2.9	2.0	3.4	2.1	7.0
9. Unknown	0.3	9.3	28.4	0.0	0.0	21.0	7.0	0.5	5.6	0.0	4.5
Discharges	3.6	14.8	7.1	11.0	6.8	6.3	12.0	4.7	10.9	10.5	12.4
Lay Offs	25.7	20.3	43.2	37.5	74.0	59.8	57.4	68.7	39.7	55.2	11.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

period before wages have been lowered materially positions are more worth holding and, therefore, workers are not as ready to hunt about for other work as in a later period when there is little information concerning the rate of earning elsewhere. Besides, the number on the payroll fails to take account of the fact that many firms are working part-time and employees resign from a job where the earnings are really low and irregular. Much then that is considered under the heading of voluntary resignations is really due to shortage of work and is different, in degree only, from the actual "lay offs" for slackness of work. This will appear in the following treatment dealing with turnover percentage by major reasons.

By referring to Table 5, in the percentage of major reasons, it will be seen that the actual turnover of firms varies from 22.0 per cent in the case of firm No. 1, to 183 per cent in the case of firm No. 24. In the second arrangement of this data in Table 6, these percentages are considered as 100 in order to bring out more clearly the proportion of the percentage that falls under each detail.

Under "Wages" are grouped all cases of exits due to dissatisfaction with wages or with earnings, complaints concerning uncertainty of the amount to be paid, as well as disapproval of the method of computing pay or of actually paying off. Looking at the table, it will be seen that firms No. 10 and No. 24 have about one-fifth of their exits in the item "Wages." Despite the likeness in percentage, the wage problem is very different at the two places. The one is a piece work industry, where operations are dependent upon the sequence of preceding operations. In the language of the shop, workers leave because they "Can not make out." This may mean that the employee has not stayed long enough to get up an adequate rate of piecework speed, or it may mean that there are delays in the routing of work. Whenever such delay continues over a period long enough to affect the total weekly earnings, the turnover is affected, despite the fact that the plant is paying a rate well above the going rate. At the other concern the problem is more definitely related to the handling of small orders and the general market rate. In this period of manufacture there has been much working to contract on small orders, which had to be run through to keep equipment busy. This variety of work makes delays.

The heading summarized "Working Conditions" comprises all cases of dissatisfaction with the nature of the job or with conditions of work. This would include not only cases of wet or heavy or dusty or dangerous work, but also cases concerning eye strain, machines unadjusted in height and unpleasant odors or poisonous fumes. This will account for the two firms, which show high turnover for working conditions, despite a very slight complaint about wages.

There is little complaint about hours at any of the plants. Occasionally a resignation occurs because of night work, more rarely because of overtime.

Under "Labor Policy" are grouped, not only strikes and unadjusted grievances, but also dislike of the foreman and inability to see an opportunity for advancement. The heading used for brevity is somewhat misleading since all exits for causes related to industrial organization and management are classed in this way. It is not easy to separate the vague objections to working conditions from those due to refusal of transfer or to inability of the firm to plan work in such a way that the preferences and attainments of certain

employees will be taken account of. Even with all these difficulties of classification it is encouraging to see that the percentages under working conditions do run parallel with the type of manufacture. Firms No. 4 and No. 15 were earlier grouped as having some turnover factors different from others in the group. These are plants dealing with chemicals. This involves gas fumes and more or less sloppy work. In firm No. 24 there is one humid department though it can not be said that turnover under this item is determined by this department. Many complaints under "Labor Policy" are really questions of sequence of operations and are, therefore, related to earnings.

As already stated, "Work Elsewhere" is concerned with the relation of the employee to other plants. It includes exits from the plants wherever a definite statement is made that the employee goes to another firm for better pay, or advancement, or is going into business for himself.[1] Among the younger workers, are found those leaving to go to school, to learn a trade or to attend classes of any sort.

"Work Elsewhere" covers up pride, reticence and many excuses. It will take a five year reporting of exits to discover how much of the reasons that fall under this heading really refer to the scale of promotion and how many are related to dissatisfaction with factory work or with surroundings. There is certain to be considerable relation between items considered earlier as dissatisfaction with wages, and perhaps some relation between "Working Conditions," and this group. Since there is no certainty concerning the demarcation, the five items already considered under major reasons are grouped in the summary as reasons connected with the job, in distinction from social and physical reasons, now to be considered. Some items under "Work Elsewhere" show a desire of employees to attain higher standing in the trade. To illustrate this, detailed reasons under this item are given for a hosiery industry making a non-fashioned product. Whatever methods of personnel employed at this concern, the fact will remain that full-fashioned hosiery stands high in the estimation of the buyer and of the trade; some of this estimation attaches to operation. It is inevitable that in a slack period some full-fashioned workers take non-fashioned work. Their return to their own trade accounts for some of the items listed below:

REASON FOR LEAVING — 1921

	Number of Exits
Work elsewhere	
Job elsewhere	5
Better position	19
Former position	53
Sent for by former employer	1
Back to full fashioned	16
To full fashioned looping	1
To learn full fashioned trade	1
To Bell Telephone Co.	1
To take up nursing	1
To enter convent	1
Returned to school	9
Going into business	1
To be governess	1
Total	111

It will be noticed that over 16 per cent (eighteen persons) of the employees in this classification left to enter the full-fashioned trade. It is impossible to say how many more in the items "former positions" and "better positions" were actually going to full fashioned plants. This reason for shifting is of course well understood in the trade and does not prevent the hiring of such experienced workers when a rush is felt.

[1] Fifty-one employees left in the later months of 1921 specifically "to go into business for themselves."

CHART VIII

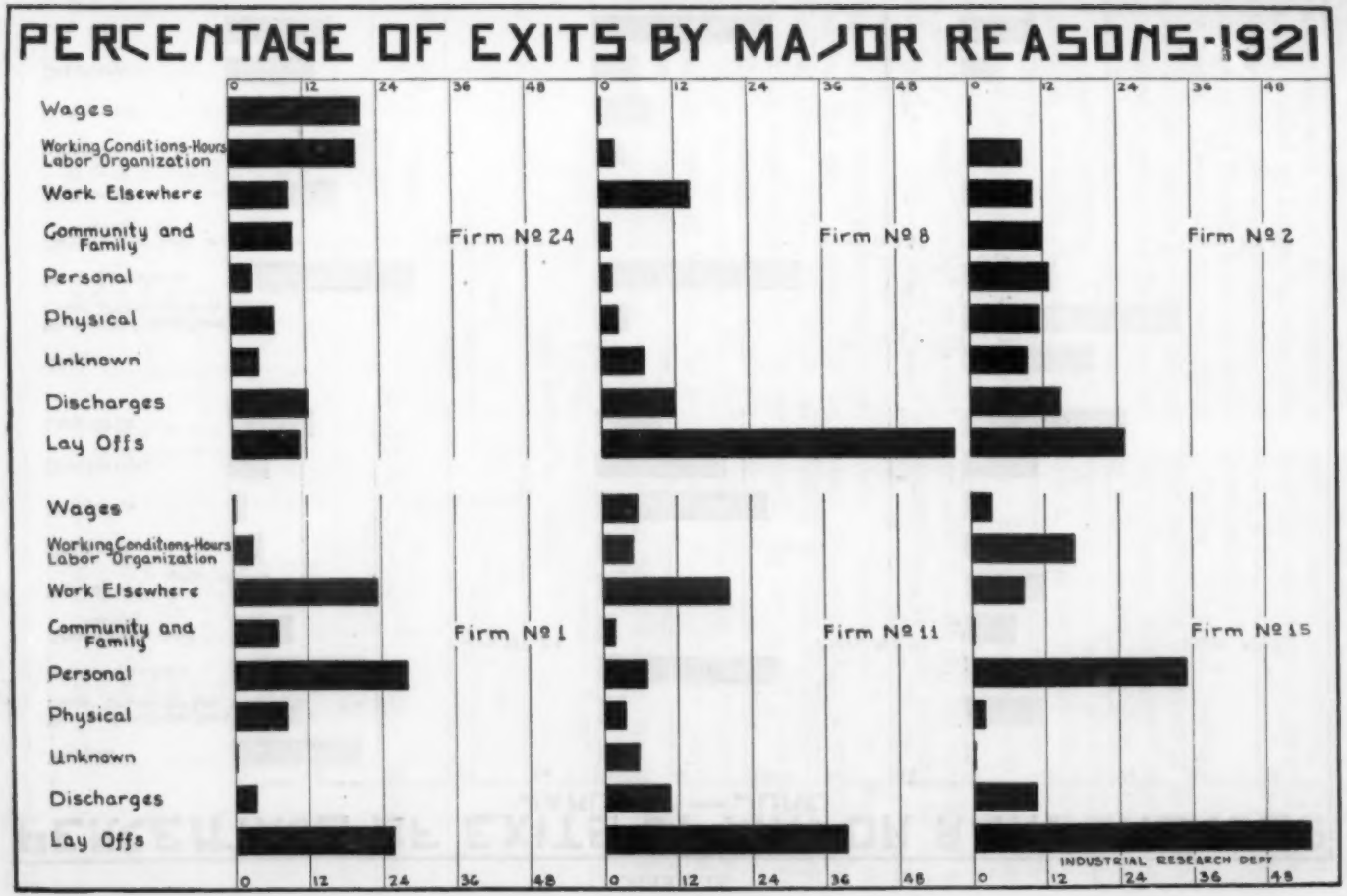
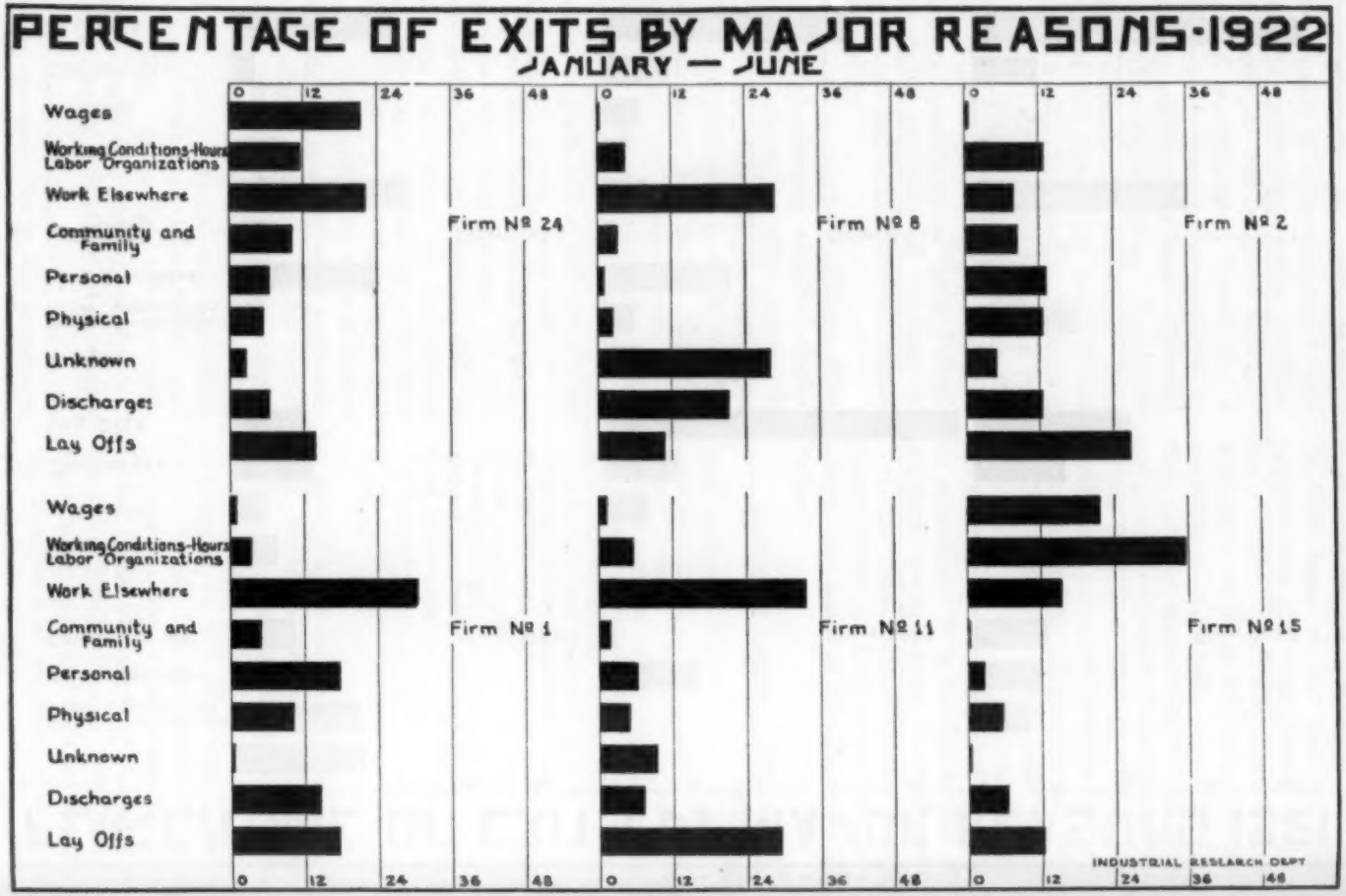

PERCENTAGE OF EXITS BY MAJOR REASONS-1921
Wages
Working Conditions-Hours Labor Organization
Work Elsewhere
Community and Family
Personal
Physical
Unknown
Discharges
Lay Offs
0
12
24
36
48
Firm № 24
Firm № 8
Firm № 2
Firm № 1
Firm № 11
Firm № 15
INDUSTRIAL RESEARCH DEPT.

CHART IX


PERCENTAGE OF EXITS BY MAJOR REASONS-1922
JANUARY — JUNE
Wages
Working Conditions-Hours Labor Organizations
Work Elsewhere
Community and Family
Personal
Physical
Unknown
Discharges
Lay Offs
Firm Nº 24
Firm Nº 8
Firm Nº 2
Firm Nº 1
Firm Nº 11
Firm Nº 15
0
12
24
36
48
INDUSTRIAL RESEARCH DEPT

Under "Community and Family" reasons are such items as: sickness in family, needed at home, housing conditions, lack of acquaintances, and distance of the factory from the worker's home. These are reasons which in special cases may be pressing enough to demand attention by the firm, but which in the long run really are matters of community interest. This item is highest in firms No. 2 and No. 24, which are firms with the largest proportion of women and especially married women, where the item "sickness in family" and "needed at home" bulk large.

Personal reasons are primarily marriage. A few come under wanderlust; "leaving the city" accounts for the personal items at No. 11, where no women are employed and the 7.9 per cent under personal reasons is wholly made up of 224 men who left the city. Occasionally leave of absence, to accompany a friend, or to visit relatives appears under personal items. It will readily be seen that in such a case men are merely anticipating a lay off, and the voluntary or personal character of their departure should not be overemphasized.

Under "physical reasons" it has been impossible to separate ill-health due to factory work from ill-health due to other causes. In fact, while the reporting has been thoroughly detailed, there are no sub-classifications, which can be studied under this heading. For two reasons, death has been included in this group, though it technically may not be considered a resignation. It was amusing to find two of the plants classifying death under "dissatisfied." In the first place, the percentage of exits due to deaths in most organizations is very small. In the second place pure accident determines whether the person will be listed by the company as ill or dead. If by chance death occurs before the weekly clearing of the payroll, the death will be reported on the

TABLE 8—Group of Eleven Firms Total Turnover of Exits[a]
Major Reasons for Leaving

Firm No.	1921 January to December			1922 January to June		
	Total Turnover Percentage	Job	Social Life	Total Turnover Percentage	Job	Social Life
1	22.0	5.84	9.6	21.3	7.5	6.9
2	59.8	11.6	21.7	53.4	11.3	18.4
3	35.7	7.4	.2	18.5	5.3	4.7
4	63.6	18.8	13.9	63.9	34.2	17.1
6	65.5	9.5	3.1	99.9	11.1	55.5
7	145.0	10.9	7.8	130.0	20.0	6.4
8	95.7	16.5	6.1	105.8	35.5	6.9
10	140.1	28.2	8.4	123.8	39.5	26.5
11	110.8	35.0	13.5	59.7	24.3	7.8
15	41.5	11.9	2.3	92.2	66.9	8.1
24	183.0	94.1	37.9	209.6	115.3	46.7

[a] Resignations have been broken up into reasons connected with the job and reasons connected with social life. The unknown reasons should be added in order to secure the total resignations given in Table 6.

company's record, whereas if death occurs several days later, the initial cause of leaving, or sickness, will be given. It will be seen that physical reasons range from 2.1 per cent in firms No. 6, No. 10 and No. 15 to 13.4 in firm No. 4. Taking the table with percentages on a 100 per cent basis and grouping resignations into reasons connected with the job and reasons connected with health and social life, one finds the percentages in Table 10.

Charts VIII and IX show major reasons for turnover for the year 1921 and 1922. The contrast between the six firms is very striking. Last year firm No. 2 had practically an equal distribution of exits among all causes with the exception of the wage division, where few complaints fall, a condition quite different from that of No. 24. A great proportion of the employees of firm No. 1 leave to take "work elsewhere," a factor which is important also in the turnover of No. 3 and No. 8.

In the first six months of 1922 firm No. 2 showed a trend similar to that of 1921, the subdivisions were practically even with the exception of the almost negligible wage group and a decrease in the "unknown." Firm No. 24 suffered from irregularities in wages and lost many workers because of opportunities to work elsewhere. The latter cause affected No. 11 heavily while working conditions in No. 15 caused the loss of a large proportion of employees.

V—LENGTH OF SERVICE

The distribution of the length of service of exits gives some of the most important facts in connection with this study. The following tables show not only the percentage of total exits in each length of service group but also the distribution of that percentage among "resignations," "discharges" and "lay offs."

As already stated firms No. 1, No. 3 and No. 6 were not hiring employees and, therefore, had no workers in short service groups. Firm No. 24 quadrupled its employees during the year. In considering No. 24 it must be borne in mind that the number of employees on the payroll were more than doubled between January and March, 1921. It is evident that in such a period of rapid rise, any firm experiences its greatest turnover among new employees who do not stay long enough to become acquainted with the plant or the processes. The stream of entrances and exits during the first week of service makes a difficult problem in rapidly increasing a force. This is particularly likely to be true where a plant is surrounded, as is this one, by plants of similar type competing both in matters of labor supply and wages. Even with this growth it is clear that to have 78 per cent of a firm's exits with a duration of continuous service of less than three months, is a costly item that would repay expenditure for training and careful follow-up. Firm No. 8 retains employees during the early months, but loses an abnormally high number in the second and third months of service.

The most salient single fact in the comparison of length of service by main reasons is the recurrence of high resignation percentages in the same length of service period in which are found high lay offs. In the case of No. 1 and No. 10 this occurs in the "over 2 years group;" for Nos. 2, 8 and 24 in the "one and under three months" service

group. In the case of firms No. 8 and No. 24 exits are negligible among employees who have served a year or more. The even distribution of resignations among all service groups in firm No. 2 is unusual and needs attention in the case of employees who have served six months or more.

The accompanying chart contrasts the experiences of firms. It will be seen that there is more variation in respect to the experiences of companies in this comparison than in any other made in this study.

It would be easy to misinterpret length of service figures by failing to take into account the continuity of employment among employees who remain at work. Besides after a long period when no new employees are being hired the exits are certain to fall in the higher service groups. In any company of long standing with fairly stable employment, exits will have a longer record of service than in a new or rapidly growing organization.

The cumulative percentage curves in the upper section of the page show these differences in the distance of their spread across the page. Firm No. 1

TABLE 9—LENGTH OF SERVICE OF EXITS[a]

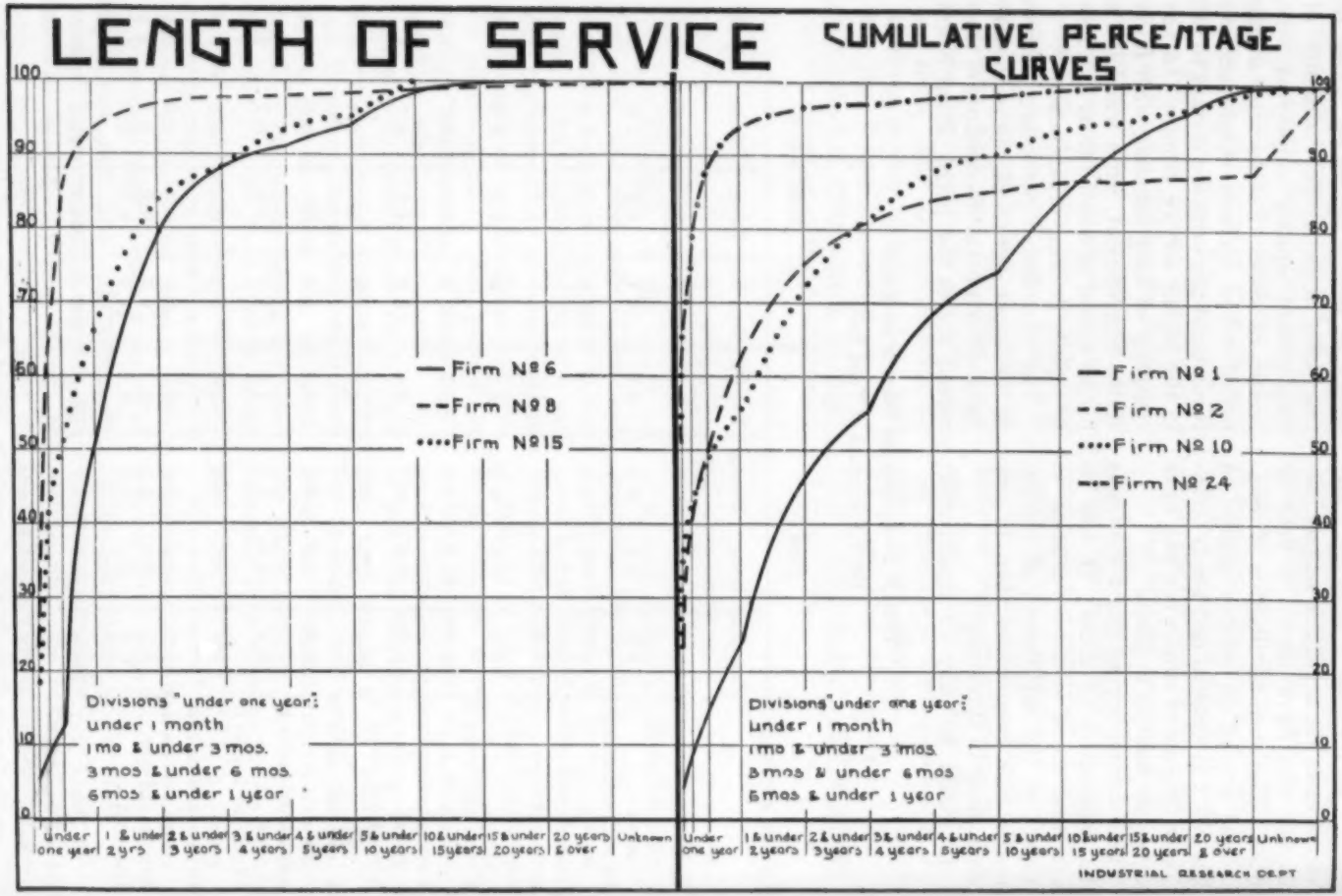
1921: Percentage of Total Exits

LENGTH OF SERVICE	FIRM NO. 1				FIRM NO. 2			
	Tot. Ex.	Resig.	Dischg.	Lay Off	Tot. Ex.	Resig.	Dischg.	Lay Off
Under 1 week	0.4	0.3	0.0	0.1	8.9	7.5	0.8	0.6
1 week and under 1 month	3.6	2.3	0.5	0.8	14.1	8.3	2.7	3.1
1 month and under 3 months	5.7	3.4	0.9	1.4	17.4	9.3	3.4	4.7
3 months and under 6 months	5.2	2.7	0.8	1.7	9.7	6.8	1.3	1.6
6 months and under 1 year	9.4	4.9	0.2	4.3	11.9	8.8	1.8	1.3
1 year and under 2 years	22.0	14.1	0.4	7.5	13.2	8.9	2.7	1.6
2 years and under 3 years	9.2	6.6	0.0	2.6	5.9	4.1	0.7	1.1
3 years and under 4 years	13.3	9.3	0.1	3.9	2.9	2.2	0.4	0.3
4 years and under 5 years	5.6	4.3	0.1	1.2	1.3	0.7	0.3	0.3
5 years and under 10 years	10.1	8.8	0.1	1.2	1.1	0.9	0.1	0.1
10 years and under 15 years	6.8	5.8	0.2	0.8	0.4	0.4	0.0	0.0
15 years and under 20 years	4.8	4.5	0.0	0.3	0.5	0.3	0.0	0.2
20 years and over	3.7	3.5	0.1	0.1	0.5	0.2	0.0	0.3
Unknown	0.2	0.2	0.0	0.0	12.2	6.5	0.6	5.1
Total	100.0	70.7	3.4	25.9	100.0	64.9	14.8	20.3

[a] Note concerning all length of service charts.

These charts were drawn from frequency tables without change for cumulative readings. Read from upper limit, i.e., percentage of employees leaving with length of service under two years, under three years, etc.

CHART X


LENGTH OF SERVICE
CUMULATIVE PERCENTAGE CURVES
— Firm Nº 6
--Firm Nº 8
····Firm Nº 15
Divisions "under one year":
under 1 month
1 mo & under 3 mos.
3 mos & under 6 mos.
6 mos & under 1 year
— Firm Nº 1
--Firm Nº 2
····Firm Nº 10
-·-Firm Nº 24
Divisions "under one year":
under 1 month
1 mo & under 3 mos.
3 mos & under 6 mos.
6 mos & under 1 year
100
90
80
70
60
50
40
30
20
10
0
under one year
1 & under 2 yrs
2 & under 3 years
3 & under 4 years
4 & under 5 years
5 & under 10 years
10 & under 15 years
15 & under 20 years
20 years & over
Unknown
Under one year
1 & under 2 years
2 & under 3 years
3 & under 4 years
4 & under 5 years
5 & under 10 years
10 & under 15 years
15 & under 20 years
20 years & over
Unknown
INDUSTRIAL RESEARCH DEPT

has few exits in early months.[1] The steepest part of the curve is that of No. 24 where 94 per cent of the exits have been with the company less than one year. 57.1 per cent of the employees who resigned at firm No. 1 during 1921 had been with the company one year while 43 per cent of these had been there over two years. Among the lay offs, 22.4 per cent had a year or over of continuous service. This means that the company has a very long length of service group among all its employees as well as a very stable force.

Chart XI gives a comparison of length of service by reason for leaving and shows that the employees who leave for "work elsewhere" have a longer length of service than employees who leave because of wages or working conditions. This would indicate need for attention to opportunities for advancement, since the employees have several years of service in companies before they leave to go elsewhere.

Combined figures for length of service for seven firms is shown in Chart XII. It will be seen that 71 per cent of employees leave during the first year. The employees discharged have the shortest term of service, next is the lay off group. Firms are thus losing under resignations, the most experienced employees.

TABLE 10—LENGTH OF SERVICE OF EXITS
1921: Percentage of Total Exits

LENGTH OF SERVICE	FIRM NO. 6				FIRM NO. 8			
	Tot. Ex.	Resig.	Dischg.	Lay Off	Tot. Ex.	Resig.	Dischg.	Lay Off
Under 1 week	0.0	0.0	0.0	0.0	4.4	2.4	1.9	0.1
1 week and under 1 month	5.5	0.7	1.4	3.4	18.8	7.1	4.9	6.8
1 month and under 3 months	3.4	2.7	0.0	0.7	38.9	10.1	3.0	25.8
3 months and under 6 months	4.1	0.0	0.7	3.4	20.1	4.4	1.1	14.6
6 months and under 1 year	37.7	6.2	2.0	29.5	11.4	2.8	0.6	8.0
1 year and under 2 years	28.1	6.8	0.7	20.6	3.2	1.5	0.4	1.3
2 years and under 3 years	8.9	1.4	0.7	6.8	1.0	0.8	0.1	0.1
3 years and under 4 years	3.4	0.0	0.7	2.7	0.3	0.0	0.0	0.3
4 years and under 5 years	2.7	0.0	0.7	2.0	0.3	0.2	0.0	0.1
5 years and under 10 years	4.8	0.7	0.0	4.1	0.6	0.5	0.0	0.1
10 years and under 15 years	0.7	0.0	0.0	0.7	0.1	0.1	0.0	0.0
15 years and under 20 years	0.7	0.7	0.0	0.0	0.4	0.4	0.0	0.0
20 years and over	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
Unknown	0.0	0.0	0.0	0.0	0.4	0.3	0.0	0.1
Total	100.0	19.2	6.9	73.9	100.0	30.7	12.0	57.3

[1] Disregard sweep of curve. Read curve of Firm No. 1 according to figures published in Table 9.

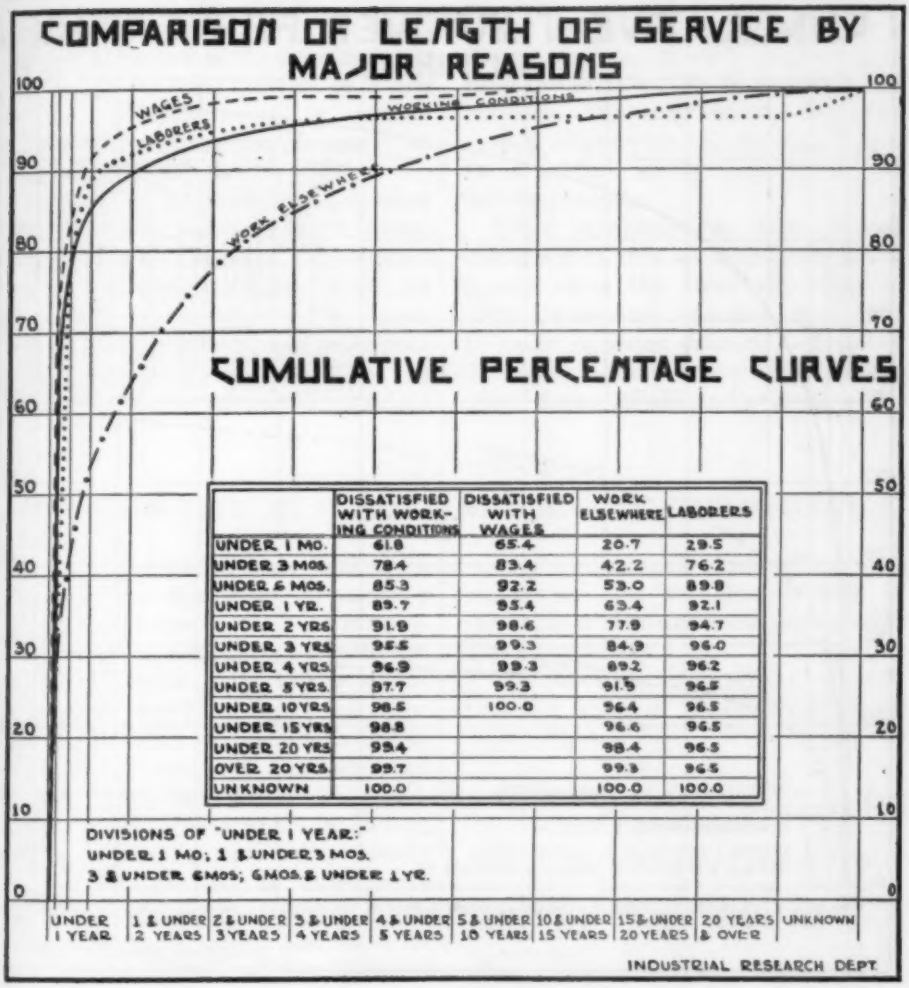
TABLE 11—LENGTH OF SERVICE OF EXITS
1921: Percentage of Total Exits

LENGTH OF SERVICE	FIRM NO. 10				FIRM NO. 15			
	Tot. Ex.	Resig.	Dischg.	Lay Off	Tot. Ex.	Resig.	Dischg.	Lay Off
Under 1 week	2.2	2.2	0.0	0.0	7.7	6.3	1.4	0.0
1 week and under 1 month	20.9	11.0	8.8	1.1	10.5	5.6	0.7	4.2
1 month and under 3 months	19.8	11.0	6.6	2.2	23.0	4.2	1.4	17.4
3 months and under 6 months	6.6	3.3	1.1	2.2	8.4	1.4	1.4	5.6
6 months and under 1 year	5.5	4.4	0.0	1.1	15.4	3.5	2.8	9.1
1 year and under 2 years	16.5	12.1	0.0	4.4	18.2	7.7	0.7	9.8
2 years and under 3 years	9.8	4.4	0.0	5.4	4.9	1.4	0.0	3.5
3 years and under 4 years	6.6	2.2	1.1	3.3	5.6	2.1	0.7	2.8
4 years and under 5 years	2.2	1.1	0.0	1.1	1.4	0.7	0.0	0.7
5 years and under 10 years	3.3	2.2	0.0	1.1	4.9	1.4	1.4	2.1
10 years and under 15 years	1.1	0.0	1.1	0.0	0.0	0.0	0.0	0.0
15 years and under 20 years	2.2	0.0	0.0	2.2	0.0	0.0	0.0	0.0
20 years and over	2.2	1.1	0.0	1.1	0.0	0.0	0.0	0.0
Unknown	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0
Total	100.0	56.1	18.7	25.2	100.0	34.3	10.5	55.2

TABLE 12—LENGTH OF SERVICE OF EXITS
1921: Percentage of Total Exits

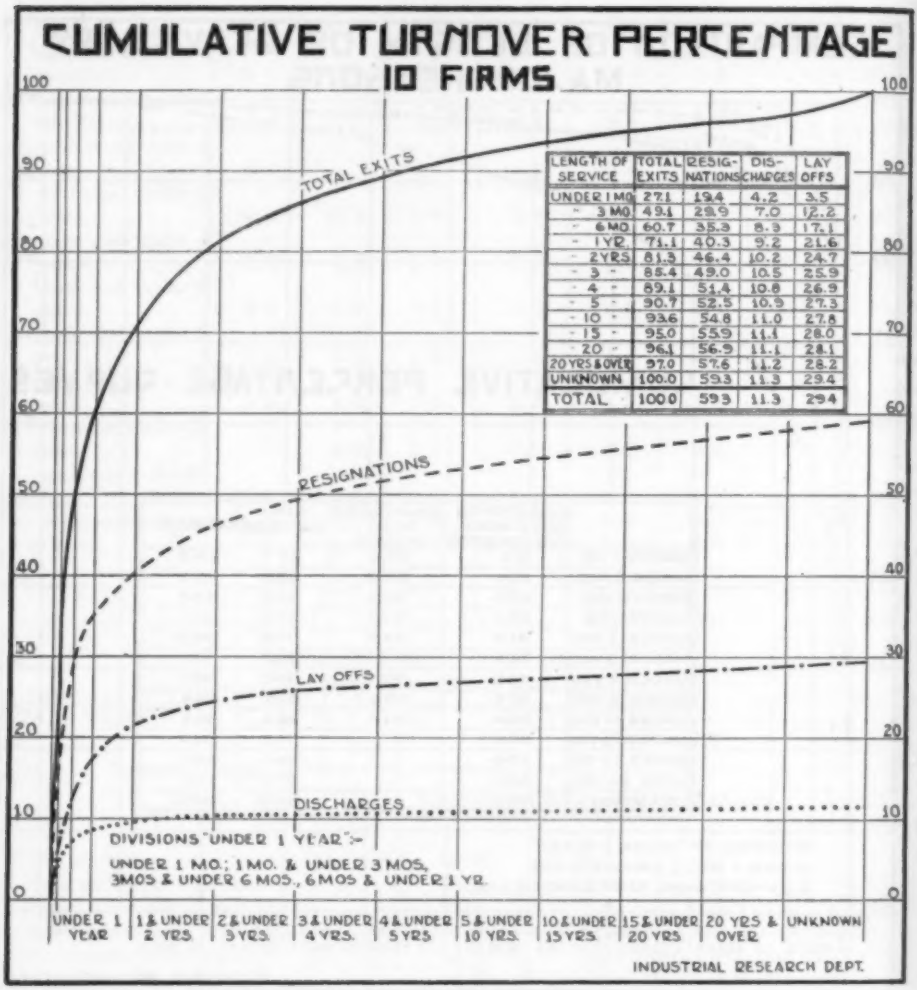
LENGTH OF SERVICE	FIRM NO. 24			
	Total Exit	Resignation	Discharge	Lay Off
Under 1 week	22.6	20.7	1.7	0.2
1 week and under 1 month	28.3	22.5	3.6	2.2
1 month and under 3 months	25.2	17.6	3.6	4.0
3 months and under 6 months	12.2	7.8	1.9	2.5
6 months and under 1 year	5.6	3.5	0.5	1.6
1 year and under 2 years	2.6	1.7	0.5	0.4
2 years and under 3 years	0.7	0.6	0.1	0.0
3 years and under 4 years	0.6	0.4	0.2	0.0
4 years and under 5 years	0.5	0.5	0.0	0.0
5 years and under 10 years	1.2	1.1	0.1	0.0
10 years and under 15 years	0.4	0.2	0.1	0.1
15 years and under 20 years	0.0	0.0	0.0	0.0
20 years and over	0.1	0.0	0.1	0.0
Unknown	0.0	0.0	0.0	0.0
Total	100.0	76.6	12.4	11.0

CHART XI



	DISSATISFIED WITH WORKING CONDITIONS	DISSATISFIED WITH WAGES	WORK ELSEWHERE	LABORERS
UNDER 1 MO.	61.8	65.4	20.7	29.5
UNDER 3 MOS.	78.4	83.4	42.2	76.2
UNDER 6 MOS.	85.3	92.2	53.0	89.8
UNDER 1 YR.	89.7	95.4	63.4	92.1
UNDER 2 YRS.	91.9	98.6	77.9	94.7
UNDER 3 YRS.	95.5	99.3	84.9	96.0
UNDER 4 YRS.	96.9	99.3	89.2	96.2
UNDER 5 YRS.	97.7	99.3	91.5	96.5
UNDER 10 YRS.	98.5	100.0	96.4	96.5
UNDER 15 YRS.	98.8		96.6	96.5
UNDER 20 YRS.	99.4		98.4	96.5
OVER 20 YRS.	99.7		99.3	96.5
UNKNOWN	100.0		100.0	100.0

CHART XII


CUMULATIVE TURNOVER PERCENTAGE
10 FIRMS
TOTAL EXITS
RESIGNATIONS
LAY OFFS
DISCHARGES
DIVISIONS "UNDER 1 YEAR":-
UNDER 1 MO.; 1 MO. & UNDER 3 MOS., 3 MOS & UNDER 6 MOS., 6 MOS & UNDER 1 YR.
UNDER 1 YEAR
1 & UNDER 2 YRS.
2 & UNDER 3 YRS.
3 & UNDER 4 YRS.
4 & UNDER 5 YRS.
5 & UNDER 10 YRS.
10 & UNDER 15 YRS.
15 & UNDER 20 YRS.
20 YRS & OVER
UNKNOWN
INDUSTRIAL RESEARCH DEPT.

LENGTH OF SERVICE	TOTAL EXITS	RESIGNATIONS	DISCHARGES	LAY OFFS
UNDER 1 MO.	27.1	19.4	4.2	3.5
" 3 MO.	49.1	28.9	7.0	12.2
" 6 MO.	60.7	35.3	8.3	17.1
" 1 YR.	71.1	40.3	9.2	21.6
" 2 YRS.	81.3	46.4	10.2	24.7
" 3 "	85.4	49.0	10.5	25.9
" 4 "	89.1	51.4	10.8	26.9
" 5 "	90.7	52.5	10.9	27.3
" 10 "	93.6	54.8	11.0	27.8
" 15 "	95.0	55.9	11.1	28.0
" 20 "	96.1	56.9	11.1	28.1
20 YRS & OVER	97.0	57.6	11.2	28.2
UNKNOWN	100.0	59.3	11.3	29.4
TOTAL	100.0	59.3	11.3	29.4

VI—SUMMARY MONTHLY COMPARISONS FOR TEN FIRMS JANUARY, 1921 TO JUNE, 1922

Table 13 on the adjoining page shows the monthly fluctuation in employment and reasons for leaving for a combined group of ten firms. No weighting was done in grouping these firms since selection was made of medium sized concerns. It is evident that the net result of the year 1921 was a decrease in total payroll of 8 per cent, a decrease which is steadily being made up by the increases of April, May and June.

The growth in payroll is also being reflected in the turnover due to resignations in recent months. Discharges and lay offs have decreased while the turnover due to resignations has gradually increased from month to month during 1922. Chart XIII in the chapter following shows the relation between this group and the combined turnover in the state departments. In recent months the turnover due to resignations has been increasing rapidly. This increase is typical of all plants. Analysis by occupations shows that instability among employees classed as unskilled laborers has been the most important factor in the increase. One may explain the turnover of laborers by adjustment of wage rates as well as by activity in the building trades.

Little emphasis has been placed elsewhere in this account upon group figures since the firms reporting in 1921 represented too few employees to make an index valuable. A Labor Turnover index is now possible by the use of data available in the area.

VII—MOBILITY IN PUBLIC AND PRIVATE EMPLOYMENT

The group of private industries coöperating in this study represents a wider distribution in kinds of employment than is usually considered together. Textiles, metal trades, chemicals, paper, public utility, retail store, and one hotel are included in the group reporting. Even with the inclusion of some continuous industries, intensive study of an area would be lacking without some attention to public employment. With the coöperation of Mr. Albert Smith Faught, it has been possible to secure the turnover for the departments of the State of Pennsylvania as well as for the classified service of the City of Philadelphia. Since the latter are not yet ready for publication a comparison is here made of the turnover of ten private industries, see Chart No. XIII, representing roughly thirteen thousand employees and 24 Departments of the State of Pennsylvania, comprising 4,041 employees.

The following table gives the yearly turnover rates of the various public departments:

State of Pennsylvania

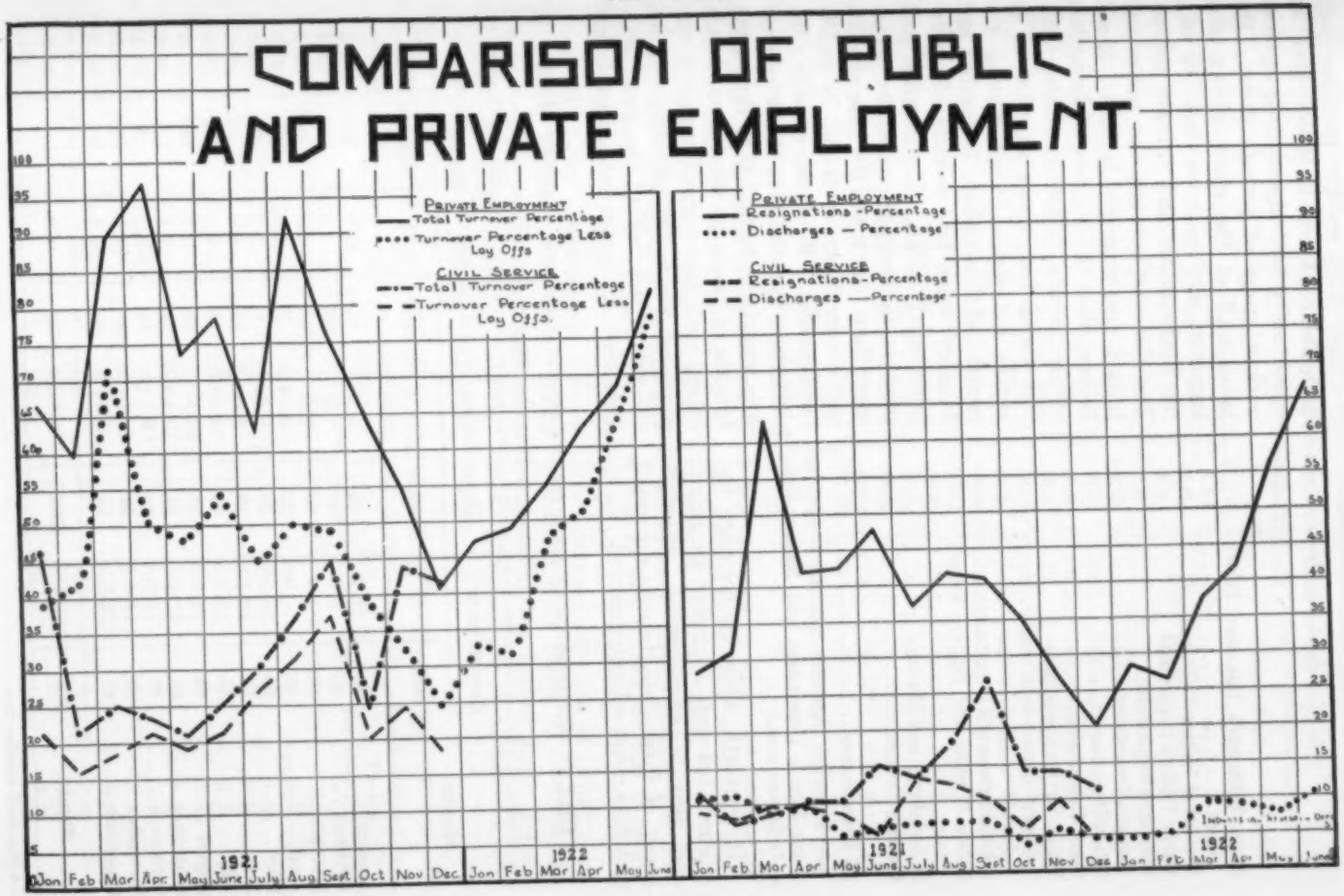
(No Civil Service Law)

	Yearly Turnover Rate
State Police	68.6
State Highway	57.4
Agriculture	18.3
Attorney General's Dept.	16.7
Labor and Industry	15.8
Legislative Reference Bureau	15.4
Forestry Department	13.9
Water Supply Commission	13.3
Public Grounds and Buildings	12.8
Public Instruction	12.4
Internal Affairs (separately elected)	11.0

TABLE 13—TOTAL PAYROLL, ABSOLUTE FIGURES AND TURNOVER PERCENTAGES OF MAIN DIVISIONS OF EXITS
Ten Firms—From January, 1921 to June, 1922

MONTH	PAYROLL	TOTAL EXITS		EXITS LESS LAY OFFS		RESIGNATIONS		DISCHARGES		LAY OFFS	
		Abs. Nos.	T. O. %	Abs. Nos.	T. O. %	Abs. Nos.	T. O. %	Abs. Nos.	T. O. %	Abs. Nos.	T. O. %
1921											
January	13,212	732	66.5	429	39.0	311	28.3	118	10.7	303	27.5
February	13,523	671	59.5	473	42.0	351	31.2	122	10.8	198	17.5
March	13,275	992	89.7	789	71.3	695	62.8	94	8.5	203	18.4
April	13,381	1,080	96.9	577	51.8	467	41.9	110	9.9	503	45.1
May	13,175	807	73.5	525	47.8	467	42.5	58	5.3	282	25.7
June	12,918	845	78.5	585	54.3	516	47.9	69	6.4	260	24.2
July	12,830	674	63.0	481	45.0	400	37.4	81	7.6	193	18.0
August	12,671	966	91.5	531	50.3	439	41.6	92	8.7	435	41.2
September	12,342	786	76.4	507	49.3	419	40.7	88	8.6	279	27.1
October	12,346	669	65.0	406	39.5	363	35.3	43	4.2	263	25.5
November	12,292	562	54.9	337	32.9	278	27.1	59	5.8	225	22.0
December	12,135	416	41.1	250	24.7	204	20.2	46	4.5	166	16.4
1922											
January	11,806	465	47.3	326	33.1	283	28.7	43	4.4	139	14.2
February	11,789	483	49.2	310	31.6	261	26.6	49	5.0	173	17.6
March	11,868	540	54.6	465	47.0	372	37.6	93	9.4	75	7.6
April	12,139	633	62.6	518	51.2	425	42.0	93	9.2	115	11.4
May	12,409	758	73.3	709	68.6	621	60.1	88	8.5	49	4.7
June	12,663	863	81.8	820	77.7	709	67.2	111	10.5	43	4.1

CHART XIII


COMPARISON OF PUBLIC AND PRIVATE EMPLOYMENT
PRIVATE EMPLOYMENT
Total Turnover Percentage
Turnover Percentage Less Lay Offs
CIVIL SERVICE
Total Turnover Percentage
Turnover Percentage Less Lay Offs.
PRIVATE EMPLOYMENT
Resignations -Percentage
Discharges — Percentage
CIVIL SERVICE
Resignations-Percentage
Discharges —Percentage
1921
1922
Jan Feb Mar Apr May June July Aug Sept Oct Nov Dec Jan Feb Mar Apr May June
Jan Feb Mar Apr May June July Aug Sept Oct Nov Dec Jan Feb Mar Apr May June

STATE OF PENNSYLVANIA—*Continued*

(No Civil Service Law)

	Yearly Turnover Rate
State Workmen's Insurance Department	10.8
Censors of Motion Pictures	7.7
Public Welfare Department	6.7
Insurance Department	6.6
Fisheries Department	5.9
Mines Department	5.9
Game Commission	5.7
Public Service Commission	5.6
Treasury Department (separately elected)	5.0
Adjutant General's Department	4.9
Public Printing and Binding Department	4.2
State Library and Museum	2.0
Banking Department	1.8
All Departments	32.3

24 Executive Agencies (all major agencies except Health Department and Auditor General's Department.)

It is worth while to compare the relation between turnover in public and private employment, although many of these departments are small and data cover a limited period.

Chart XIII on the previous page and Table 14 which follow give an opportunity to compare state agencies with a group of private firms. The lower half of the chart shows total turnover and turnover less lay offs, for both public and private groups. The distance between the curves will in each case represent lay offs. It will be seen that the chances of being laid off in private industries during 1921 was about four times as great as in public industries except during the months of November, December and January when the probabilities were more nearly alike. The greatest contrast is in resignations under which more than four times the rate of shifting occurs than is found in public employment. When one considers the differences in mobility in the two groups it is surprising to find that the curves for rate of discharge wind around each other, with the curve for public employment above the private group for the entire last half of the year 1921. This high discharge rate is explained

TABLE 14—DEPARTMENTS OF THE STATE OF PENNSYLVANIA LABOR TURNOVER REPORT [a]

January to December 1921

MONTH	RESIGNATIONS [b]		DISCHARGES		LAY OFFS		TOTAL	
	Number	T. O. %	Number	T. O. %	Number	T. O. %	Number	T. O. %
January	41	12.2	31	9.2	84	24.9	156	46.3
February	28	8.3	26	7.7	22	6.5	76	22.5
March	30	8.9	33	9.8	22	6.5	85	25.2
April	40	11.9	32	9.5	7	2.1	79	23.5
May	36	10.7	29	8.6	6	1.8	71	21.1
June	53	15.7	19	5.6	14	4.2	86	25.5
July	46	13.7	45	13.4	12	3.5	103	30.6
August	64	19.0	42	12.5	20	5.9	126	37.4
September	91	27.0	35	10.4	25	7.4	151	44.8
October	47	14.0	22	6.5	12	3.6	81	24.1
November	49	14.6	34	10.1	65	19.3	148	44.0
December	46	13.7	15	4.5	83	24.6	144	42.8
Total	571	14.1	363	9.0	372	9.2	1306	32.3

[a] No civil service law.

[b] Including deaths, 26 in number.

TABLE 15—Pennsylvania State Highway and State Police
1921: Labor Turnover Percentage

Month	State Highway				State Police			
	Resignation	Discharge	Lay Off	Total	Resignation	Discharge	Lay Off	Total
January	22.8	14.0	71.1	107.9	15.6	40.5	0.0	56.1
February	10.5	3.5	16.7	30.7	12.5	65.4	3.1	81.0
March	13.2	7.0	19.3	39.5	9.3	68.6	0.0	77.9
April	12.3	6.2	2.6	21.1	18.7	71.7	3.1	93.5
May	18.4	7.9	4.4	30.7	6.3	62.3	0.0	68.6
June	32.5	4.4	3.5	40.4	6.3	37.4	3.1	46.8
July	29.0	12.3	5.2	46.5	15.6	84.1	0.0	99.7
August	44.8	12.3	2.6	59.7	6.3	84.1	3.1	93.5
September	56.2	14.9	11.4	82.5	9.3	56.1	0.0	65.4
October	23.7	7.9	7.9	39.5	12.5	40.5	3.1	56.1
November	28.1	15.8	53.5	97.4	9.3	37.4	0.0	46.7
December	20.2	2.6	70.2	93.0	0.0	37.4	0.0	37.4
Total	25 9	9.1	22.4	57.4	10.2	57.1	1.3	68.6

when analysis is made of the two state departments, with high turnover rates, i.e. State Police and State Highway. In the former the discharge rate ranges from 37.4 per cent to 84.1 per cent in the months of July and August. The State Highway Department shows an exactly opposite tendency. Exits are due mainly to lay offs which were especially heavy at the end of the year. This department, "during 1921, was being reduced in numbers because of the gradual exhaustion of revenue from an issue of highway bonds."[1]

In order to avoid looking too narrowly at the figures for the turnover of public employment, for which few other comparisons are in print, computations were made to contrast the turnover in the largest state department with similar departments elsewhere.

	Philadelphia Police Turnover Per Cent	Pennsylvania State Police Turnover Per Cent	Los Angeles City Police Turnover Per Cent
January	6.4	56.1	9.4
February	6.2	81.0	7.0
March	5.9	77.9	2.3
April	4.8	93.5	2.3
May	4.0	68.6	1.2
June	5.6	46.8	8.2
July	2.1	99.7	1.2
August	2.6	93.5	5.8
September	5.9	65.4	3.5
October	4.6	56.1	9.4
November	4.6	46.7	11.7
December	5.6	37.4	4.7

[1] Mr. Albert S. Faught—unpublished address.

In Pennsylvania the annual turnover rate in 1921 for the State Police was 68.6 per cent; in Los Angeles City it was 5.6 per cent; and in the city of Philadelphia it was 4.8 per cent.

The movement from month to month in these three jurisdictions is shown in table at bottom of page 221.

The above explanation of the two public service departments with highest turnover is given to show the need of verification in the future before the tendencies here shown are regarded as conclusive. Other publications will be devoted to the very interesting relationships between public and private employment. It is not the purpose of this study to make this contrast in detail.

The short item of service in the analysis for men is due to discharges in the early weeks of employment for the state police.

Contrasting men and women in public service, the table below shows that for the first year's service "women are more apt to leave after one to three months' service; while the men will either drop out sooner than three months or else stay until after six months."

TABLE 16—LENGTH OF SERVICE OF PENNSYLVANIA PUBLIC SERVICE AND STATE POLICE

Absolute Numbers and Percentages

LENGTH OF SERVICE	PUBLIC SERVICE						STATE POLICE	
	Men		Women		Total		Total	
	No. of Exits	% of Exits	No. of Exits	% of Exits	No. of Exits	% of Exits	No. of Exits	% of Exits
Under 1 week	56	5.2	4	1.7	60	4.6	38	14.4
1 week and under 1 month	102	9.5	13	5.6	115	8.8	62	23.5
1 month and under 3 months	227	21.1	69	29.9	296	22.7	32	12.1
3 months and under 6 months	211	19.6	35	15.2	246	18.9	33	12.5
6 months and under 1 year	190	17.7	23	10.0	213	16.3	49	18.5
1 year and under 2 years	137	12.7	46	19.9	183	14.0	16	6.1
2 years and under 3 years	71	6.6	18	7.8	89	6.8	16	6.1
3 years and under 5 years	34	3.2	7	3.0	41	3.1	15	5.7
5 years and over	44	4.1	16	6.9	60	4.6	3	1.1
Unknown	3	0.3	0	0.0	3	0.2	0	0.0
Total	1,075	100.0	231	100.0	1,305	100.0	264	100.0

VIII—CONCLUSIONS

On the basis of turnover the eighteen months from January, 1921 to June, 1922 naturally divide into three periods. The first, ending in May, 1921, was characterized by a rising turnover much of which was caused by resignations in anticipation of lay offs or resignations immediately following the restive days of a lay off; the second period is more even, with a slowly lowered turnover; in the last period accelerated production, activity in the building trades, and the opportunities for laborers accompanied by some adjustment in laborers' rates account for the high turnover of the months of 1922.

No attempt has been made to use refined statistical methods in the interpretation of data in connection with this study. Only the most obvious conclusions have been drawn, owing to the experimental character of the first period of reporting. Even with this care some conclusions are at variance with current statements of the tendencies of labor turnover. The case of lay offs is so striking that it is worth emphasis, even if later study should show that the relationship is merely the happening of an abnormal industrial period. The contour of the curves, except in the case of unexpected lay offs after all plants were dull, is determined by the resignation rather than by the lay off curve. This conclusion is in accordance with traditions of workmen. Observers in industry in this period have emphasized the respect felt by the workers for the person who finds himself a job elsewhere before he is laid off, as the joking of workmen would put it, he is a fellow who does not consider himself so important to the company that he will undoubtedly be kept. In the case of "Work Elsewhere" while evidence is not wholly conclusive, the locality and firm to which workers shift wherever detail is specified under "better position" indicates a much more restricted area of turnover than is usually described. Much of the turnover is within the trade and within the best known and outstanding plants in the trade. For example, in the case of hotel employees the same factors influence the workers to shift that influence the guests. In the summer months when the mountains are delightful to play in, they are equally attractive to work in and employees follow the guests for the same reasons that the guests move. This will account for the relative stability of hotel employees between seasons and the almost complete exodus when the season changes. The tendency of hosiery workers to follow the full-fashioned trade has already been cited. The evidence secured by the Department is too scrappy to push conclusions even as far as the accumulating material suggests. More careful attention to this item will be given in later work.

This study is in no way concerned with what is a normal turnover. The whole emphasis rests upon the discovery of what are the actual causes of turnover and the way in which these causes are related to each other, to production conditions in concerns, and to wider factors influencing the whole market. It is not contended that a low turnover rate is always desirable. Turnover may be too low, as well as too high. To quote an illustration from Mr. Faught, "An efficient hospital may depend on having a resident-medical staff which is continually being recruited, with a relatively high turnover rate, rather than on having a staff of physicians who

are afraid to cut loose and practice for themselves, and who by lingering on the staff for many years markedly reduce the turnover rate."[1] The question is one of a balance of satisfactoriness among occupations. Turnover may be low for a whole plant and yet relatively very high for one or two occupations or departments.

Sometimes parts of an occupation must be studied as in the case of turnover for waitresses reported by a large hotel. For the whole occupation the turnover rate is relatively high as contrasted with other hotel occupations. Analysis shows that the problem is not due to a high turnover in the main dining rooms where service is uniform and tipping general. The difficulty arises before a waitress gets transferred from the side halls. If the waitress is inexperienced in training, she must begin in the various dining rooms used by chauffeurs and nurse girls. Turnover occurs either in the first week of learning or because an opportunity to transfer to the main dining room does not occur as soon as expected by the employee. Some of this is a matter of the distribution of tipping. Guests who will pay generously for service for themselves in the main dining room, are liable to forget the service to their children and attendants in other parts of the hotel. Turnover thus depends in a very direct way upon occupations. Since the quantity and variety of occupations within any plant is very great, and since it is unlikely that these occupations will occur in similar proportions in plants of the same type even in related industries, generalizations, as to what is normal for any situation, are impossible.

In later studies comparison of groups by use of correlation coefficients may be possible. Age, education, and nationality now reported by a few firms should be considered. In the case of such factors, and in that already mentioned in connection with length of service, statements concerning exits are useless unless audit is made of the same factors for the employees in the active file of the firm. In this experimental stage only the most salient facts of turnover could be uniformly secured. In time findings may prove illuminating in other directions. Even at this stage it is apparent that the shifting about of employees is not the disordered floating from place to place that war writings deplored. Well marked similar movements characterize our first period of group comparisons.

Ultimately the complex of turnover tendencies for an area can be combined into a turnover index. The Department is, in fact, working upon such an index. In at least one case a scanty index was used to adjust wages.

The Franklin Motor Works used the rates for the various occupations that prevailed in 1905 as the basis of their relative rating. The rates of that year were chosen because those seemed to be the rates most satisfactory to workers as evidenced by the low labor turnover rates of that year. From the point of view of workers this is probably the best index to the relative satisfactoriness of rates. If the rates of turnover are the same in the various occupations and operations or if they increase as we go downward from the highest valued operations, but increase gradually (for we hope that those in lower valued operations are less contented than those in the higher valued and seek to progress), this fact may be taken as indicating fair satisfactoriness of such rates.[2]

In formulating such an index one must be sure that the lower turnover is due to "satisfactoriness of rates" rather

[1] Albert Smith Faught—unpublished address.

[2] *Relative Rating Versus Cost of Living as a Basis of Adjusting Wage-Rates*, Thomas W. Mitchell, Ph.D.—ANNALS, March, 1922, p. 51.

than to the knowledge that the "quitting is not good." Besides any adjustment of wages from occupation to occupation on a fixed basis which disregards supply of labor is an emergency measure helpful only in the transition of a rapidly changing period.

This study shows that a beginning only has been made in the coördination of education and industry in personnel research. The whole future of development depends upon the farsightedness of the business group as well as upon the faith and earnestness of educational workers. How vast is the field to be explored is well set forth in this recent statement of Professor Yerkes:

> Personnel research, if it is to stabilize industrial production, further the development of the personality, and increase human satisfaction with life, must study intensively as well as extensively, with all of the methods available to modern science, the physical, mental, and spiritual qualities and relations of the human being. Much already has been accomplished in the study of the relations of the body of the worker to industrial demands. Specifications are being prepared which indicate the ordinary requirements of jobs and occupations and enable the employment manager, in the light of definite knowledge of the worker, to estimate his degree of physical fitness or adequacy for a particular kind of work. The individual may be too large or too small, too strong or too weak, too quick or too slow, too resistant to fatigue or not sufficiently so, to meet the requirements of a particular task without waste and without personal harm. There is no reason why industry should not know alike and with practical accuracy, occupational requirements and the bodily characteristics and capacity of the worker, so that these two sets of facts may be more satisfactorily related to each other.[1]

Labor Turnover has been one of the first of these many factors to demand attention. Its ramifications carry the investigator into the realm of wider study. Is it too optimistic to believe with Professor Yerkes that "We stand on the threshold of a new era in which attention and interest are beginning to shift from the material to the personal; from the things that are worked with, to the worker; from the machinery of industry, to the man who made, owns, or operates it."[2]

[1] *What is Personnel Research?*—Robert M. Yerkes, *The Journal of Personnel Research*, June, 1922, p. 59.

[2] *Ibid.*, p. 56–57.

APPENDIX

Exhibit No. 1—Causes of Leaving Blank.

Exhibit No. 2—Causes of Leaving Blank—Detailed form.

Table No. 1—Total Turnover Percentages—Nineteen firms, January, 1921–June, 1922.

Table No. 2—Lay Off Turnover Percentages—Nineteen firms, January, 1921–June, 1922.

Table No. 3—Quarterly Report—Total Turnover Percentage—Twenty firms, January, 1921–June, 1922.

Table No. 4—Quarterly Report—Lay Off Turnover Percentages—Twenty firms, January, 1921–June, 1922.

EXHIBIT 1—CAUSES OF LEAVING

Average number of men employed..... Average number of women employed.....

NAME OR NUMBER	RACE AND SEX	DEPARTMENT	POSITION HELD	DATE ENTERED	DATE LEFT	REASON FOR LEAVING
	C M F					R D L M
	C M F					R D L M
	C M F					R D L M
	C M F					R D L M
	C M F					R D L M
	C M F					R D L M
	C M F					R D L M
	C M F					R D L M
	C M F					R D L M
	C M F					R D L M
	C M F					R D L M
	C M F					R D L M
	C M F					R D L M
	C M F					R D L M
	C M F					R D L M
	C M F					R D L M
	C M F					R D L M
	C M F					R D L M
	C M F					R D L M
	C M F					R D L M
	C M F					R D L M
	C M F					R D L M
	C M F					R D L M

Circle M if male, F if female. If colored, circle C in addition. Under Reason for Leaving R signifies Resignation; L, Lay off; D, Discharge; M, Miscellaneous. Circle Classification in which the exit falls, in addition to giving the specific reason for leaving.

EXHIBIT 2—CAUSES OF LEAVING

Average number of men employed..... Average number of women employed.....

Name or Number	Birth		Race and Sex	Department	Position Held	Shift	Education		Marital Status	Date Entered	Date Left	Reason for Leaving
							Left School					
	Date	Place					Age	Grade				
			C M F						S M			R D L M
			C M F						S M			R D L M
			C M F						S M			R D L M
			C M F						S M			R D L M
			C M F						S M			R D L M
			C M F						S M			R D L M
			C M F						S M			R D L M
			C M F						S M			R D L M
			C M F						S M			R D L M
			C M F						S M			R D L M
			C M F						S M			R D L M
			C M F						S M			R D L M
			C M F						S M			R D L M
			C M F						S M			R D L M

Under Race and Sex circle M if male, F if female. If colored, circle C in addition. Under Marital Status S signifies single, M married. Under Reason for Leaving R signifies Resignation; L, Lay off; D, Discharge; M, Miscellaneous. Circle Classification in which the exit falls, in addition to giving the specific reason for leaving.

APPENDIX—TABLE 1—Total Turnover Percentages

Nineteen Firms: January, 1921 to June, 1922

Month	No. 1	No. 2	No. 3	No. 4	No. 6	No. 7	No. 8	No. 9	No. 10	No. 11	No. 12	No. 14	No. 15	No. 16	No. 17	No. 18	No. 19	No. 21	No. 24
1921																			
Jan.	39.7	36.9	121.8	69.0	32.1	77.0	86.8	....	137.9	88.4	....	....	42.8	....	....	....	....	....	112.2
Feb.	15.7	92.7	15.7	53.0	12.3	68.2	54.3	....	72.9	108.6	....	....	3.3	....	....	....	....	....	52.5
Mar.	17.3	127.9	47.4	33.0	82.2	92.3	63.9	....	65.0	183.2	....	....	9.9	....	....	....	....	....	184.1
Apr.	26.4	64.3	29.4	38.0	145.6	156.3	311.0	....	902.2	77.4	....	....	72.0	....	....	....	....	....	204.3
May	46.3	57.9	29.7	36.9	35.4	112.8	140.8	....	87.0	101.2	....	....	36.4	....	....	....	....	....	217.9
June	33.6	67.7	52.6	51.1	198.3	97.0	54.0	....	78.4	108.8	....	....	61.0	....	....	....	....	....	245.5
July	19.4	47.5	19.7	67.1	0.0	238.5	17.8	....	87.5	119.9	....	....	52.0	....	....	....	....	....	164.0
Aug.	10.7	45.4	34.3	88.9	177.0	453.7	47.8	....	55.9	224.8	....	....	25.9	....	....	....	....	....	203.2
Sept.	15.7	60.7	14.5	112.3	21.3	155.4	74.8	....	48.8	135.7	....	....	34.6	....	....	....	....	....	190.7
Oct.	16.1	36.5	11.7	115.4	35.7	201.1	138.3	62.9	79.7	68.1	91.6	....	53.9	....	....	....	....	....	156.5
Nov.	12.6	53.3	11.6	54.6	7.1	156.7	103.9	65.8	30.6	37.1	....	....	106.9	114.0	52.3	146.9	....	....	205.7
Dec.	12.9	38.9	26.3	*33.5	6.9	104.8	70.2	27.0	51.4	36.5	....	....	25.9	128.2	45.2	....	....	28.7	168.7
1922																			
Jan.	30.2	40.0	54.1	31.6	6.9	81.1	30.3	57.1	68.1	53.2	79.3	33.8	18.1	71.9	99.5	117.3	7.9	60.5	204.0
Feb.	21.7	46.2	24.9	36.8	0.0	245.6	28.8	30.8	73.1	87.7	79.4	20.6	60.7	65.6	110.5	235.6	66.5	72.9	154.9
Mar.	23.0	39.4	9.4	51.8	26.5	127.8	110.2	103.5	102.8	54.6	103.4	54.7	39.2	127.1	48.6	228.3	50.0	137.3	190.4
Apr.	15.6	83.7	22.2	68.2	0.0	129.0	126.6	93.3	173.2	37.9	104.0	50.6	58.7	70.2	60.8	303.3	15.3	119.3	180.8
May	18.8	59.8	25.9	83.5	13.0	111.6	142.6	173.7	179.0	58.8	106.5	105.8	165.5	204.6	61.3	242.5	25.5	201.5	290.8
June	18.8	54.8	29.4	120.0	12.8	86.5	164.2	216.6	135.4	64.8	87.1	107.3	170.6	90.9	36.4	182.2	35.4	212.2	274.8

* Estimated.

APPENDIX—TABLE 2—LAY OFF TURNOVER PERCENTAGE

Nineteen Firms: January, 1921 to June, 1922

Month	No. 1	No. 2	No. 3	No. 4	No. 6	No. 7	No. 8	No. 9	No. 10	No. 11	No. 12	No. 14	No. 15	No. 16	No. 17	No. 18	No. 19	No. 21	No. 24
1921																			
Jan.	20.2	10.3	106.9	45.0	0.0	24.6	40.1	....	110.3	15.3	....	....	23.0	....	....	....	....	....	19.5
Feb.	0.7	10.0	0.0	27.0	0.0	16.2	3.3	....	42.5	40.2	....	....	0.0	....	....	....	....	....	18.4
Mar.	1.2	32.6	18.4	6.0	65.8	23.6	16.8	....	19.5	36.4	....	....	3.3	....	....	....	....	....	0.0
Apr.	3.3	12.7	0.0	2.0	119.1	71.5	241.4	....	835.6	9.7	....	....	58.3	....	....	....	....	....	0.0
May	19.4	18.6	2.7	10.7	0.0	38.7	117.6	....	31.1	31.1	....	....	0.0	....	....	....	....	....	5.4
June	4.2	13.0	16.6	17.6	182.6	35.4	22.5	....	49.0	48.9	....	....	28.7	....	....	....	....	....	0.0
July	0.0	2.1	5.7	3.9	0.0	189.7	1.6	....	36.1	67.9	....	....	40.0	....	....	....	....	....	1.6
Aug.	0.9	4.7	2.8	18.0	177.0	408.3	12.3	....	10.1	163.1	....	....	0.0	....	....	....	....	....	7.4
Sept.	3.7	17.8	0.0	45.8	0.0	101.0	10.2	....	4.9	84.8	....	....	0.0	....	....	....	....	....	5.4
Oct.	5.6	7.7	2.9	75.9	21.4	165.9	83.5	26.2	13.3	25.2	3.3	....	9.5	....	....	....	....	....	0.0
Nov.	5.4	15.4	0.0	22.0	0.0	114.0	70.1	65.8	0.0	8.4	....	....	96.6	0.0	5.5	0.0	....	....	61.3
Dec.	5.3	3.8	17.6	*15.7	0.0	79.0	34.5	0.0	0.0	9.0	....	....	18.5	0.0	25.4	....	....	3.2	93.7
1922																			
Jan.	6.1	5.5	51.1	13.3	0.0	43.9	11.0	4.4	21.3	26.6	13.2	0.0	0.0	0.0	2.9	0.0	1.6	33.6	35.1
Feb.	6.9	15.2	9.3	0.6	0.0	187.0	5.5	8.8	25.8	63.7	17.5	0.0	46.4	0.0	52.2	7.4	60.0	0.0	9.4
Mar.	5.0	7.9	3.1	0.0	6.6	51.5	12.2	0.0	21.4	11.6	19.6	27.4	0.0	0.0	0.0	23.4	31.7	9.8	22.7
Apr.	1.2	50.3	9.5	2.1	0.0	36.1	1.1	2.6	12.4	2.7	13.1	0.0	0.0	0.0	6.4	6.6	0.0	3.3	32.0
May	2.9	3.6	9.7	0.0	6.5	17.1	2.4	0.0	7.6	1.2	1.6	0.0	0.0	0.0	6.4	0.0	6.8	0.0	55.0
June	0.0	5.9	3.3	1.0	0.0	9.0	8.1	0.0	15.1	0.0	4.1	0.0	22.8	0.0	3.3	0.0	0.0	0.0	25.2

*Estimated.

APPENDIX—TABLE 3—QUARTERLY REPORTS, TOTAL TURNOVER PERCENTAGE

Twenty Firms: January, 1921 to June, 1922

QUARTER	No. 1	No. 2	No. 3	No. 4	No. 6	No. 7	No. 8	No. 9	No. 10	No. 11	No. 12	No. 14	No. 15	No. 16	No. 17	No. 18	No. 19	No. 21	No. 24	No. 27
1921																				
Jan.–March	23.8	87.5	62.8	51.7	42.2	78.9	67.3	....	94.0	125.4	....	....	18.7	....	....	....	....	....	120.9	....
Apr.–June..	35.2	63.3	37.1	42.0	126.7	127.2	181.0	....	394.9	95.5	....	....	48.6	....	....	....	....	....	224.0	....
July–Sept.	14.9	51.3	22.9	88.8	65.5	284.1	47.8	....	63.8	159.9	....	....	36.6	....	....	....	....	....	186.7	....
Oct.–Dec...	13.8	42.8	16.6	68.8	16.5	170.7	104.0	50.8	53.8	47.4	....	....	63.2	120.7	48.7	....	....	....	177.2	....
1922																				
Jan.–March	24.9	41.1	*17.1	40.8	11.4	149.2	56.6	68.0	81.4	65.2	87.3	36.7	39.4	88.1	87.2	201.2	41.1	90.6	182.8	40.6
Apr.–June..	17.8	65.7	25.7	80.1	8.6	107.5	143.9	166.7	162.3	54.4	99.2	89.6	136.0	121.8	53.0	241.3	25.5	180.7	244.6	....

* Figures for February and March only.

APPENDIX—TABLE 4—QUARTERLY REPORT, LAY OFF TURNOVER PERCENTAGES

Nineteen Firms: January, 1921 to June, 1922

FIRM NUMBER	1921 QUARTERS				1922 QUARTERS	
	Jan.–Mar.	Apr.–June	July–Sept.	Oct.–Dec.	Jan.–Mar.	Apr.–June
1	7.0	8.6	1.5	5.5	6.0	1.5
2	17.8	14.7	8.3	8.9	9.3	19.4
3	43.0	6.3	2.9	6.8	6.2	7.5
4	26.1	10.2	22.0	38.6	4.2	0.9
6	21.8	100.8	59.0	7.1	2.3	2.15
7	21.8	51.7	233.8	133.7	91.4	20.1
8	18.9	137.0	8.2	62.8	9.6	3.9
9	....	....	....	29.5	3.9	0.8
10	60.0	344.0	16.8	4.4	22.8	11.6
11	30.5	29.4	104.9	14.3	34.2	1.3
12	....	....	....	....	16.8	6.3
14	....	....	....	....	9.5	0.0
15	8.8	29.6	12.2	41.4	15.5	7.9
16	....	....	....	0.0[a]	0.0	0.0
17	....	....	....	15.3[a]	18.5	5.4
18	....	....	....	....	12.0	2.1
19	....	....	....	....	30.8	2.3
21	....	....	....	....	14.4	2.3
24	10.7	1.8	4.9	51.1	22.4	37.1

[a] November and December, 1921.

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